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CIVIC ENGAGEMENT IN A MOBILE LANDSCAPE: TESTING THE ROLES OF DURATION AND FREQUENCY IN LEARNING FROM NEWS

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Dedication

To my wife and children, for whom I do all my work.

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CIVIC ENGAGEMENT IN A MOBILE LANDSCAPE: TESTING THE ROLES OF DURATION AND FREQUENCY IN LEARNING FROM NEWS

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Abstract: Consuming the news is often seen as preparing a person to participate in a democracy by giving them the information they need to make choices and provide input. This relationship has varied depending on the ways in which news is delivered, with different news platforms delivering different results in terms of learning from the news. As society changes and people's news consumption habits shift toward mobile, it is necessary to re-examine this relationship in a mobile age. This dissertation conducts surveys of two samples of U.S. adults one year apart in order to examine civic engagement in a mobile news landscape. Study 1, given to a nationally representative sample of U.S. adults in 2014, tests the Mobile News Dependency Model. The model predicts that reliance on mobile devices for news consumption will lead people to consume news in shorter, inattentive sessions, which should have detrimental effects on news knowledge and therefore civic engagement. Study 2, given in 2015 to a different sample of U.S. adults, refines the tests conducted in Study 1 using updated measures to identify those who snack on the news and compare them with those who get news in larger portions. Results show that news sessions on smartphone are indeed shorter than

on other platforms, and that smartphone news use is associated with snacking on the news. But those who get news from smartphones are not significantly less knowledgeable and are in fact slightly more civically engaged than those who do not. Links between smartphone news use and short sessions or snacking are supported, but the overall Mobile News Dependency Model is not supported. The overall relationship between mobile news use and civic engagement appears to take a different path than the one specified. Finally, results show that most people consume news on multiple platforms, perhaps normalizing the effects of any one platform on knowledge. Implications for news consumers, news producers, and democracy in a mobile age are discussed.

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CHAPTER 1: INTRODUCTION

In the concluding remarks of a chapter on media technology and the 24-hour news cycle, Bucy, Gantz and Wang write that the mobile internet is poised to play a significant role in the news diffusion process. The crucial point, however, is that it appears people are developing new consumption behaviors in connection with this technology, behaviors that lead them to consume news in bits and pieces. “The challenge to informed citizenship remains whether the sampling implied by such news grazing has the capacity to actually inform, as opposed to merely cultivating a superficial sense of knowing about important developments in the world” (Bucy, Gantz, & Wang, 2014). That question is at the heart of this dissertation.

Much is changing about news and civic engagement. Newspaper reading has long been associated with participation in public life because, the reasoning goes, the newspaper is one of the only places to get a substantial diet of up-to-date information on public affairs. While newspapers still bring in the lion’s share of news advertising revenue, they do not command the largest audience. Even television, which had been America’s leading news source for decades, has now been dethroned. The largest news audience is now on the internet, and mobile devices are quickly becoming the preferred way of accessing the internet, at least where news is concerned (Kirkland, 2014; O’Toole, 2014). We now live in a mobile landscape. Engagement in public life is also significantly different from decades past. The internet has changed how people communicate and organize (Shirky, 2008), and many public affairs are conducted and public issues addressed outside traditional governmental channels (W. L. Bennett, Wells, & Freelon, 2011; Zukin, Keeter, Andolina, Jenkins, & Delli Carpini, 2006). What we think we know about the relationship between news and civic engagement may no longer be true.

This study conducts an investigation of news consumption and civic engagement in a mobile landscape by surveying two different samples of American adults in the summers of 2014 and 2015. Two different sets of questions measure how people consume news on an array of platforms, including mobile devices. Respondents were also given a news knowledge quiz and asked about their civic engagement. Combining these measures, it's possible to examine relationships between platforms, news consumption, news knowledge and civic engagement to understand how these pieces now fit together. The Mobile News Dependency Model is proposed and tested. In this model, mobile news use is connected to average session length and then to news knowledge and civic engagement. Understanding these relationships improves our understanding of participation in a democracy and the crucial role of the news media in disseminating information about public affairs.

Dissertation Overview

We begin by reviewing civic engagement as we know it. Scholars over the last 60 years have identified an array of variables that influence one's civic engagement, including several personal characteristics and attitudes. One's connections to others and communication with them also have important effects. After reviewing all these, Chapter 2 discusses which might have changed in the mobile landscape and are therefore key in this study.

Chapter 3 examines how people learn from the news and presents the main theoretical argument driving this work. That is, Lang's Limited Capacity Model of Mediated Message Processing posits that a series of cognitive processes draw upon limited mental resources when turning media messages into knowledge in a person's mind. The model sees the limitations imposed by one's own mental capacity and

engagement, but does not consider the role of time. Eveland's Cognitive Mediation Model fills this gap somewhat, by suggesting that the more a person connects one idea to another (elaboration) and the less a person browses for messages of interest (selective scanning), the better learning will be. In both cases, additional time spent with the message itself (whether through cognitive procession or elaboration) is theorized to improve learning, though time isn't directly measured in either model. Additionally, Eveland calls for studies of different media platforms on the assumption that processing may vary from platform to platform. While these processes are similar across individuals, some people or circumstances may make better use of them than others – that is, differences in individuals, the content, or the medium itself may lead to greater or lesser knowledge gains. After reviewing these important factors, Chapter 3 attempts to place this study in a line of studies comparing the effects of different news platforms in an effort to gauge how mobile's invasion might change the playing field.

Mobile devices themselves are the focus of Chapter 4. After briefly reviewing the technology and formulating a definition of mobile devices, the chapter explains how mobile changes the landscape for news companies, affecting production, distribution, and economics. Mobile also has the potential to change how people consume news, and evidence of new consumption patterns are presented. Given what we know about mobile devices, the chapter then outlines how consumption and engagement might be affected.

Chapter 5 presents research questions and hypotheses, and Chapter 6 explains the research methods used. Results are presented in Chapter 7. These three chapters treat studies 1 and 2 under separate section headings for clarity and because the studies used different measurements a year apart from each other. Discussion and conclusions are presented in a final chapter, Chapter 8.

The goal of this dissertation is to understand civic engagement in a mobile news landscape, specifically how mobile news use affects news knowledge and participation in public life. The results present a picture of news consumption and democracy at the start of the mobile age. The hypotheses presented here seek to further our understanding of how media messages are captured, processed and retained by news consumers and how mobile devices might alter that processing and storage. The key variable connecting these ideas is how long people spend consuming the news. The question is whether consuming the news in bits and pieces, as may be common on mobile devices, can lead to substantial knowledge or, as Bucy et al. (2014) put it, only a "superficial sense of knowing."

CHAPTER 2: CIVIC ENGAGEMENT

Much of the Western world uses democratic forms of government to organize and structure society. Democratic governments are designed such that power (in one form or another) is in the hands of the people rather than centralized in a monarch or dictator. The people exercise this power primarily through voting, whether to elect representatives to carry out their will as government officials or by directly deciding questions of policy through referenda. Democracy comes in many flavors as it is implemented differently in different countries, but the central feature relevant to this study is that this form of government requires input from citizens. As Dalton describes, in a democracy, everyone participates in making the laws, and then everyone agrees to abide by the laws they helped make (Dalton, 2008, p. 22).

How citizens do (and ought to) provide this input is therefore the subject of considerable scholarship. Unfortunately, in the academy there is no consistently applied term encompassing all such activities. Both "participation" and "engagement" have been used to describe citizens' involvement in providing input in democratic systems. These words are sometimes used interchangeably; at other times, engagement is used to connote a broader range of activities and attitudes. That is, a person who remains informed or carries strong opinions about public policy might be called "engaged," even if he doesn't directly "participate" by taking an action such as voting or donating. Matters are complicated by the fact that many have worked to describe useful distinctions between "political participation" and "civic participation" or engagement. Political participation refers to actions taken to influence government or policy makers (Verba, Schlozman, & Brady, 1995) and includes voting, donating, canvassing, displaying signs, and more. Civic participation refers to actions taken to address community issues and problems,

including attending community meetings, volunteering, raising money for charity, and so on.

All of these activities represent some contribution to public life, and so it is necessary to select a term that can be used to refer to them collectively. This study uses "civic engagement" for this purpose, following the lead of noted researcher Michael X. Delli Carpini. In a brief on the subject posted on the American Psychological Association website (Delli Carpini, n.d.), Carpini provides a simple definition of civic engagement: "individual and collective actions designed to identify and address issues of public concern." Because the term "civic" refers to public life in general, it can be seen as encompassing more than "political," which focuses on government (Dahlgren, 2009). Civic engagement is therefore used to describe the universe of public life, with some activities in that universe being targeted at governments (political participation) and others targeted at communities or other publics (civic participation). This study considers both to be important parts of democratic society.

CITIZENSHIP

Citizenship is another term commonly applied in connection with the discussion about how citizens should provide input within their democratic governments. Citizenship here does not mean a person's status as a legal resident of a country but instead refers to one's sense of duty and willingness to contribute to public life. The question here is, "What does it mean to be a good citizen in a democracy?" (Dalton, 2008; Schudson, 1998). To this the answer generally is that one ought to participate in some way. Thus there are studies that have focused on identifying different ways in which people act as citizens, focusing on differentiating among generations that might have different conceptions of citizen duties (W. L. Bennett et al., 2011; W. L. Bennett,

Wells, & Rank, 2009; Dalton, 2008). This study incorporates these ideas without adopting their citizen-oriented terminology.

Civic engagement research

The history of research into civic engagement in the United States is only about as long as the country has allowed everyone to vote. All women in the U.S. have not yet had the right to vote for 100 years — the 19th Amendment prohibiting sex-based discrimination in voting laws was ratified in 1920. It was not until the passage of the 1965 Voting Rights Act and the 26th Amendment in 1972 that every American adult over age 18 could claim the right to vote. While not exclusively so, politics was until then largely the realm of well-to-do white men, leaving little reason to study differences in the electorate. The situation has improved since then (with black voter turnout eclipsing white voter turnout in the 2012 election, when the United States' first black president was re-elected; see File, 2013), and interest among political and communications scholars has flourished accordingly.

Two major storylines are present in the development of civic engagement research. The first revolves around the question of what it means to participate or be engaged. Voting is obviously a primary way for people to participate in politics, but at the outset, not many others were considered. In his 1959 book, "Political Life," one of the first to take on the subject, Robert Lane considers financial contributions, writing letters, political discussion and joining political organizations in addition to voting as indicators of political participation (Lane, 1959). Rather than finding one scale that could measure political participation from top to bottom in America, he found several patterns and "constellations" of engagement (pp. 93-94).

Verba and Nie (1972) in their seminal study systematized civic engagement into four alternative forms by including activities other than voting. Voting was considered one form of participation in itself. They found that, at the time, about 21% of Americans limited their participation to casting a vote. Being directly involved in election campaigns was a second form of participation, and about 15% of Americans concentrated on this form of involvement. Working within groups to either directly address community issues or petition officials for redress was a third form of participation, with about 20% of Americans participating mainly in this way. For a small portion of the public, about 4%, participation was limited mainly to contacting public officials directly about issues of concern to them personally (Verba & Nie, 1972). A principal components analysis supported this multi-dimensional view of participation.

The key contribution of this book was to consider civic activities like cooperative group work to be a productive part of democratic participation. Subsequent research on civic engagement has since retained this broader view but has taken various routes in categorizing and describing it. In his review of efforts to measure political participation, Brady (1999) distinguishes between electoral and non-electoral activities. Putnam (2000) referred to cooperative activity similar to Verba and Nie, and to expressive forms of participation. More recently, others have distinguished between political and civic participation (Gil de Zúñiga, Veenstra, Vraga, & Shah, 2010; Rojas & Puig-i-Abril, 2009; Shah, 2005; Zhong, 2014). Researchers continue to work to expand what is meant by civic engagement, arguing that people can be involved in many ways and that younger generations are creating and adopting new forms of participation including boycotts, online expression, mobilization, and more (Dalton, 2008; Zukin et al., 2006).

The second major storyline that colors civic engagement research is whether engagement is declining and, if so, to what extent, among whom, and with what

consequences. This discussion revolves primarily around the work of Robert Putnam, who argued convincingly with studies of Italian and American societies that people are leading more individual lives, causing participation in public life to decline (Putnam, 2000). Concerns about declining democratic engagement seem to be nearly as old as democracy itself, but Putnam so carefully documented declines in such a wide variety of associations and groups that the result was more than the usual doom and gloom. Some researchers echoed this analysis. Others took issue with Putnam's blaming television for drawing us away from each other and toward a screen (Norris, 1996). Still others argued that Putnam hadn't counted everything and that people are simply now participating in new, more individualized ways (Schudson, 1998). The search for new forms of participation described above begins to dovetail with this line of argument, with more than one work making the case that no, civic engagement is not declining, it is merely manifest in new forms of participation and new attitudes that we have yet to develop measures for (Dalton, 2008; Schudson, 1998; Zukin et al., 2006).

All this leads us to the rise of the Internet and digital communications, which has coincided with several other changes in society such that the ways in which people gather, organize and communicate have changed substantially (C. W. Anderson, Bell, & Shirky, 2012; Shirky, 2008, 2010). These changes predictably reignited discussions surrounding civic engagement. If theories about high-choice environments (Prior, 2005) and isolationism ruining people's engagement were correct, then the internet, with its endless variety and potential for polarization, would certainly damage democracy (Sunstein, 2009). On the other hand, if the Internet made it easier to work together, social capital, communication, education, information gathering, and other antecedents of civic engagement would flourish, making the Internet a boon for democracy (Dahlgren, 2009; Johnson & Kaye, 2003; Shah, 2005). In fact, reality has brought a bit of both along with

some unexpected developments that complicate the picture. The internet does offer more chances for collaboration and social connection (Kushin & Yamamoto, 2010) and provides opportunities for people to motivate one another to participate (Rojas & Puig-i-Abril, 2009). The internet provides many new ways for people to participate, such as through social media and content creation (Ostman, 2012; Park, Kee, & Valenzuela, 2009; Shah, Kwak, & Holbert, 2001). After reviewing the literature, Neuman, Bimber and Hindman conclude that on the whole there is a "modest association" between use of the internet and civic engagement (Neuman, Bimber, & Hindman, 2011). Equally as interesting is that it is behind many of the new forms of engagement practiced particularly by younger citizens (Zukin et al., 2006). But the internet has fortified (and in some cases exacerbated) previously existing education-based or wealth-based gaps in knowledge and access (Norris, 2001) and is blamed for enabling subversive groups including terrorist cells to congeal in isolation from society (Sunstein, 2009).

Now, the technological and societal setting is again shifting. Now that roughly two out of three Americans own an internet-connected smartphone, have the ways in which people participate in democracy changed again? How do mobile technologies influence the ways in which people gather information, collaborate and communicate? What does civic engagement mean in a mobile landscape? If we have learned anything from asking similar questions during the growth of the internet, it is that technology's relationship to civic engagement consistently depends on several other factors, including demographics, attitudes, social connectedness, and communication skills. This is because a communication technology's attributes may enable or encourage certain uses (Eveland, Jr., 2003), but these attributes almost always interact with other variables when humans are on both ends of the tubes. Thus, this study presents four types of independent variables that have been shown to affect civic engagement: personal characteristics,

attitudes, connections to others, and communication. While an extensive discussion of each of these is impossible here, the focus of this chapter is to identify each independent variable and provide an overview of how each is connected with civic engagement — whether and how a person provides input in a democracy.

What leads to civic engagement?

PERSONAL CHARACTERISTICS

Demographics

Age

Younger citizens have been less involved in politics than older ones for as long as participation has been measured. Lane found that younger people voted less frequently and attributed the difference to younger people's lower incomes. He also suggested that younger people might vote less because they are more geographically mobile, belong to fewer associations and groups, place greater emphasis on entertainment, and are not invested in their communities through home ownership (Lane, 1959). Verba and Nie's seminal study attributed low participation among younger citizens to a "startup" effect (Verba & Nie, 1972), wherein younger people are concentrated on education, finding careers, and starting families instead of political involvement. Also, they simply have not been eligible to vote as long as their older peers and so are less experienced and less engaged. In other words, once someone begins to participate, they are more likely to do so in the future than someone who has never participated. Overall, the relationship between age and civic engagement is positive and linear. Also, younger people are likely to have lower socioeconomic status, another factor that makes them less likely to participate. Finally, Verba and Nie found that length of residence in a community helps

explain younger people's lower participation rates. When controlling for this factor, participation differences among age groups diminished (Verba & Nie, 1972).

Scholars have also suggested that this longstanding participation gap is due to generational differences in the ways people participate. In Verba & Nie's study, young people were more likely to contact public officials about issues narrowly affecting them rather than vote or donate. Bennett and colleagues have theorized that younger citizens, for many of the reasons described above, choose not to or cannot get involved in traditional, "dutiful" forms of civic engagement. Instead, they prefer "actualizing" forms of engagement, including self-expression, protesting, boycotting, volunteering, and more (W. L. Bennett et al., 2011, 2009). Educational efforts in civic engagement tend to focus on traditional forms of engagement for which the bar of entry can be rather high, and so younger people don't participate perhaps because they think there are no other options (W. L. Bennett et al., 2009). The Internet has the potential to encourage newer forms of engagement that younger citizens prefer, but Bennett and colleagues find that many sites are constructed under the official, "dutiful" paradigm off-putting to younger citizens (W. L. Bennett et al., 2011). Instead, youth find other ways to get involved, usually through social networking (Dimitrova, Shehata, Stromback, & Nord, 2012; Kushin & Yamamoto, 2010). A study of Chinese college students found that those who use social networking sites to stay in touch with others and meet new people were more likely to be civically engaged (Zhong, 2014). Zukin and colleagues laid the foundation for this with their proposal to include a broad suite of alternative activities as participation, thereby suggesting that younger people are just as involved as their older counterparts, but in different capacities (Zukin et al., 2006).

Gender and Race

There was a time when women and minorities were significantly less civically engaged than their white male counterparts (Lane, 1959), but these differences are now insignificant (Flanigan, Zingale, Theiss-Morse, & Wagner, 2014; Zukin et al., 2006). Women voters have outnumbered men in every election since 1964 and have voted in higher proportions in every election since 1980 (Center for American Women and Politics, 2014). Yet they report being less interested in politics and sometimes participate differently from men (Bekafigo & McBride, 2012). Similarly for race, the 2012 election was the first time a higher proportion of black voters turned out compared with white voters, though Asian and Hispanic voters were nearly 20 percentage points behind both groups (File, 2013). Minority voices are still significantly missing from American public life (Zukin et al., 2006), but these differences are largely tied to other variables strongly related to minority status, including income and education. Once these effects are controlled, the direct effects of race on civic engagement disappear.

The same is true for gender — once the effects of other variables are controlled, the direct effects of gender on civic engagement are insignificant (Zukin et al., 2006). Men and women have substantially similar patterns of participation, though they tend to talk about issues differently (Schlozman, Burns, Verba, & Donahue, 1995). Where gender gaps in specifically political participation have been observed, they are attributed to differences in men's and women's resources and social cues received (Schlozman, Burns, & Verba, 1994; Verba, Burns, & Schlozman, 1997).

Socioeconomic Status

Income

A person's income should obviously be related to some measures of civic engagement that require money or at least financial stability, such as donating to campaigns and causes and even volunteering time. But its relationship is also historically and consistently strong with voting, associational membership, campaign involvement, and other measures (Lane, 1959; Verba & Nie, 1972; Zukin et al., 2006). The effect of income on civic engagement is in many ways indirect because of its associations with education, free time, access to information, size of one's social network and sense of efficacy. In a 2009 survey of U.S. adults, income's strongest association was with education, followed by political participation, civic participation and media use (Gil de Zúñiga, Jung, & Valenzuela, 2012). Supporting the case that income's effects are primarily indirect is the finding that, even though women and men have substantially different personal incomes, it is the combined family income that matters most in predicting whether people of both genders participate (Burns, Schlozman, & Verba, 2001). In other words, it is not income itself but the overall level of resources one has access to that determines civic engagement. As such, there is not consistency in how income is used in predicting civic engagement. Studies including those just mentioned use it as a separate independent or control variable, while others do not include it, considering education itself to be a sufficient indicator of socioeconomic status (e.g. Zukin et al., 2006).

Besides the fact that higher incomes provide resources and access that enable one to participate, there is a compelling argument that the U.S. democratic system "works" for the wealthy (or at least they have experienced success within it) and they feel more a part of it, thereby increasing their interest in participating. Poorer people, conversely,

may feel disenfranchised, have a lower sense of efficacy, and be less likely to participate. Form and Huber found evidence of divergent political ideologies based on income and race, with rich whites most strongly adopting the narrative of opportunity within the American system and poor blacks least likely to believe it (Form & Huber, 1971).

Education

Education is the single most important factor in determining whether a person will participate in politics. The relationship between education and civic engagement has held strong since the earliest studies (Lane, 1959; Verba & Nie, 1972; Verba et al., 1995). This is partly because of direct effects. Social studies courses and civic skills are generally part of an education in America, both of which have been shown to increase a young person's likelihood to participate as an adult (Andolina, Jenkins, Zukin, & Keeter, 2003). In other words, people learn the importance of participating and how to participate before they are likely to do so.

Education also has several indirect effects. Zukin et al. (2006) found that the level of education one's mother achieved was a particularly good indicator of one's level of civic engagement. To receive an education one must practice acquiring and storing knowledge, meaning those with better educations will be better able to acquire and use political information. Finally, education is strongly correlated with income. Wealthier families can provide better educations for their children, which in turn helps them get higher-paying jobs as adults.

Socialization

A person's training in civic and political participation plays heavily into their ability to become engaged in those capacities themselves. Research in this area operates on the assumption that good citizens are made, not born. There is no test that Americans

must pass in order to vote, though historically such tests were unjustly used to disenfranchise African Americans by asking impossibly difficult questions. These tests were outlawed by the 1965 Voting Rights Act. Even though there is not (anymore) a test that one must pass in order to vote, democracy places power in its citizens and therefore each bears some responsibility to learn how to participate. The socialization a person receives in civic engagement has been measured in multiple ways, because there are multiple sources from which training may come. The family plays a central role, with those who have a role model in the home, for instance a parent who votes, and have political discussions at home both exhibiting higher levels of participation (Niemi & Sobieszek, 1977; Zukin et al., 2006). Socialization might also happen at church (Verba et al., 1995) and work (Burns et al., 2001), where opportunities to work together in groups lay the basis for participation in public life.

Much of the burden, however, has been placed on the schools, whose assumed job is to shape young people into responsible citizens. Thus civic education is the subject of much research, with studies showing that participation in high school organizations and early volunteering experiences can lead youth to participate as adults (Verba et al., 1995). Direct education about politics and civic skills, such as in social studies courses, positively influences civic engagement, and this holds true in other countries as well (Torney-Purta, 2002). Candidates, political parties and other interest groups have now taken to publishing information online in an effort to garner support, and these along with the home and the school continue to contribute to youths' willingness to participate (Andolina et al., 2003).

ATTITUDES

Interest and attention

The amount of interest one has in politics, an election, a candidate, a party, or a public issue is obviously a driver of how engaged one becomes. In fact, interest is at least coincident with and perhaps a prerequisite for most forms of civic engagement. People pay different levels of attention to politics and government, and people pay attention to different issues within those realms. These differences in attention are the subject of research into issue publics, or groups of citizens that form around particular issues of interest to them (Krosnick, 1990; Neuman et al., 2011). Because of its status as an important first step toward action, interest (or attention) is often used as a control variable in studies of civic engagement.

The approach of Zukin et al. (2006) was to include attention, efficacy, partisanship, and sense of duty along with political knowledge in a single scale they called "political capital." In their overall model, political capital was the strongest predictor of civic engagement, beating out socioeconomic status and early socialization (Zukin et al., 2006). This seems to treat the subject with too broad a stroke, because each of the attitudes in this section, while related, have measurable effects on civic engagement on their own.

Efficacy

Efficacy is the sense that political and social change is possible and that one's actions can be part of bringing about this change (A. Campbell, Gurin, & Miller, 1954). This is typically measured at the individual level by indicating agreement with statements about their ability to influence government (Gil de Zúñiga et al., 2010). When people believe that their actions will have an effect on government — in other words, that they

are likely to achieve the desired changes — they are logically more likely to take those actions. Conversely, when individuals feel left out of the political system, or that nothing they do would make any difference in how things are run, they are more likely to withdraw — a condition known as political alienation (Reef & Knoke, 1999). Political efficacy can be further broken down into internal efficacy (the belief that one can understand politics and is able to participate) and external efficacy (the belief that government is responsive to one's actions) (Tien-Tsung, Lu, Lee, & Wei, 2008). Having a high sense of efficacy has been connected with increased civic engagement (Jennings & Zeitner, 2003; Jung, Kim, & Gil de Zúñiga, 2011; Verba et al., 1995).

One's sense of trust in the political system is an idea closely related to efficacy that also has been correlated with civic engagement. Where political efficacy refers to an individual's confidence in his ability to influence government, political trust refers to the faith people have in their government and its responsiveness (Citrin & Muste, 1999). Political trust's relationship to civic engagement can be tricky, however, because distrust in the system, or a sense that it is not working properly, can actually drive people to become more involved (whether through opposition such as protests or boycotts or through proposing new solutions). Schudson therefore argues that political trust is not a good indicator of societal health. Complete, blind faith in the institution opens the door for overreach and corruption. Complete distrust or no confidence in the system leads everyone to disengagement and collapse. So what, Schudson asks, is the right level of trust that indicates a healthy society (Schudson, 1998)? It is not easily placed on a continuum from good to bad.

Partisanship

Political partisanship is a measure of the extent to which an individual identifies with and supports a political party (Weisberg, 1999). Partisanship is measured as a characteristic of the individual, usually through attitudinal questions such as whether and how strongly a person considers himself a Democrat, a Republican or an Independent or to align with these parties' ideals. As such, partisanship is treated as a long-term condition, a relatively stable identification with one party or another. When one identifies strongly with a political party, he or she is likely to engage in political communication (L. Wei, 2012), voting (Huckfeldt, Mendez, & Osborn, 2004) and other forms of civic and political engagement (Zukin et al., 2006).

For the purposes of civic engagement, it does not matter which party a person supports, but rather the strength of their support for that party. Thus measures of partisanship in studies of civic engagement are often folded at the midpoint, placing those with weak party identifications at one end of the scale and those with strong party identifications at the other (Gil de Zúñiga et al., 2012; Huckfeldt et al., 2004). Because strength of partisanship is a known driver of political involvement, it is often used as a control in studies seeking to isolate some new contributor to civic engagement.

Sense of duty

Citizens in a democracy often speak of a sense of duty to be civically engaged. This is not patriotism, but a deeply ingrained feeling of responsibility to provide the input that democracy requires of its citizens. Americans in particular exhibit this value, and civic duty has long been associated with voting and other forms of civic participation (Almond, 1989; Lane, 1959; Schudson, 1998; Verba & Nie, 1972; Zukin et al., 2006). In other words, if you believe it is your duty to vote, you are more likely to do so than someone who senses no such responsibility.

A major component of civic duty is the duty to keep informed. In America at least since progressive reforms around 1900, the "informed citizen" has been seen as the ideal model for those able to vote (Schudson, 1998). Under this conception, citizens are responsible to learn about the candidates, platforms or proposals in order to make an informed choice between them when voting. Scholars have argued that the burden this places on average voters is too high, and that even voters with low levels of factual knowledge are able to participate fully (Popkin & Dimock, 1999). While most have rejected the hypothesis that all citizens must be policy experts before casting a vote, there is consensus that citizens bear at least some responsibility for acquiring knowledge about public affairs (Galston, 2001). Studies have shown that the civic duty to keep informed is a consequence of one's education and a predictor of one's news media use (M. McCombs & Poindexter, 1983; Poindexter & McCombs, 2001).

CONNECTIONS TO OTHERS

Social capital

In order for people to work together, make decisions, and address public issues, they must have connections with each other. The level of one's civic engagement, then, is logically tied to one's social, interpersonal and community ties. One's partisanship, for instance, or the strength of one's ties to a political party, has long been an indicator of that person's wiliness to participate in the political process.

The concept of social capital as it is today understood builds on the work of several key researchers. Granovetter proposed that people in a society might be viewed as parts of a network of individuals, and that people's relationships to one another might be of differing strengths (Granovetter, 1973, 1983). While people might have strong ties to family members, co-workers and others they interact with daily, they also form weak ties

with those they interact with occasionally or who don't fill such a prominent role in their lives. These might include social contacts, community or church members, and so on. Granovetter proposed that even these weak ties have value and can provide for meaningful exchange of resources. Coleman identified social capital as a set of resources found in one's social ties, and considered it to be distinct from human capital, or investments made in oneself for instance through education (J. S. Coleman, 1988). A major drawback of this kind of capital is that there is less individual incentive to invest in it, because it exists in and primarily benefits society. Bourdieu viewed social capital similarly, as the resources linked to one's network of relationships, but argued that these networks were used largely to preserve existing social structures and achieve personal advantage, as in the "old boys" club (Bourdieu, 1986).

Putnam is credited with building on these definitions and making major advances in tying social capital to civic engagement (Putnam, 2000). He defined social capital as the "collective value of all social networks and the inclinations that arise from these networks to do things for each other." He carefully documented evidence of declines in social capital in the United States, showing that membership in many types of social organizations has declined. Putnam's argument is that as fewer people participate in social activities, they form fewer bonds with other people in their communities, making it harder to collectively address public issues. Additionally, people must trust each other to some extent in order to make collective decisions, and social trust also has been declining. Putnam lays much of the blame for the erosion of American social life to the privatization of leisure time as people spend more and more time in front of screens (Putnam, 2000). Others have contested this explanation, saying it depends on what media content is consumed (Norris, 1996).

Researchers have found it difficult to measure social capital at a community level and have instead primarily focused on measuring it in individuals. In fact, an important question in this area is how social capital is best defined such that it can be empirically measured. Some of the most widely used measures were developed by Williams, who developed scales for online and offline measurements of individuals' social networks (Williams, 2006). Others have followed his lead and used measures of one's connectedness to others as a measure of social capital (Gil de Zúñiga et al., 2010; Scheufele & Shah, 2000; Shah, McLeod, & Yoon, 2001; Shah, 1998; Zhang & Chia, 2006). Such measures of social capital have been shown to be an antecedent of civic engagement (Gil de Zúñiga et al., 2012; Park et al., 2009). Social capital can be developed through online social networking (Valenzuela, Park, & Kee, 2009) and news use (Beaudoin, 2009, 2011).

Extroversion

Measures of extroversion or sociability (in other words, one's innate disposition toward interaction with other people) are sometimes included as controls in studies involving social capital or civic cooperation (Kraut et al., 1998; Pagani, 2011). Some people are naturally more comfortable meeting new people and talking to them, and this personality predisposition would logically lead these people to have larger social networks than those who are shy (Correa, Hinsley, & Gil de Zúñiga, 2010). Extroversion's effects on civic engagement are primarily indirect through measures of social capital and connectedness.

Peer influence

Zukin et al. (2006) identify an invitation to participate as an important step along the path toward civic engagement. Those of all ages who were invited to participate were

much more likely to do so (Zukin et al., 2006). Other scholars refer to this phenomenon as mobilization, meaning that people can mobilize one other to participate in public life (Green & Gerber, 2008; Rojas & Puig-i-Abril, 2009). The effects of mobilization are strong enough to be separate from political capital, but can in many cases coincide with other predictors of civic engagement. As Zukin et al. point out, decisions about who to invite are often based on judgments about how likely the invitee is to accept, or how well the invitee will perform the task being requested. Because of this, those already more likely or with more resources to participate receive more invitations to do so. It has been proposed that technologies such as the internet should connect more people and make it easier to send and receive invitations to participate, and some evidence supports this hypothesis (S. W. Campbell & Kwak, 2011b; Pan, Shen, Paek, & Sun, 2006; Rojas & Puig-i-Abril, 2009).

COMMUNICATION

To this point, we have examined attitudes, situational factors, and states of being that would almost always be considered antecedents of any participatory behaviors. The topics to be discussed under the heading of communication are less easily placed. Political discussion, political expression and information gathering have at times been treated as precursors that lead one to become engaged (Huckfeldt et al., 2004; Ostman, 2012) and at other times as behavioral indicators that one is civically engaged (Gibson & Cantijoch, 2013; Gil de Zúñiga et al., 2010). They are discussed here as antecedents, however, because this study takes the position that discussion, expression and information work to enrich the individual and enhance one's propensity to be civically engaged, rather than considering an individual's amount of discussion (or expression or information) to be a societal good in itself. Certainly discussion and expression are either

impossible or meaningless if only one person participates; but this study follows research that has focused on measuring the benefits that individuals get from their participation in these activities, benefits that are likely to lead them on to other behaviors focused on the public good and civic engagement.

Discussion

People who discuss public affairs with others are more likely to take part in the democratic process. Talking with others about politics, even informally, can help people form opinions and gain knowledge of issues, enabling them to feel more confident in participating through voting or campaigning (Huckfeldt & Sprague, 1995; Verba et al., 1995). This discussion is a key part of the public deliberation seen as essential to the formation of public opinion in a democracy (Dahlgren, 2005; Habermas, 2006). Researchers measure political discussion usually by asking how often a person discusses politics or public affairs with others. Another method of measurement is to gauge the size of one's discussion network by asking how many people you regularly discuss politics with.

One's level of comfort in discussing public affairs is closely tied to their level of knowledge about public affairs. Knowledge is not a prerequisite, of course, and in general discussion seems to influence knowledge more than the other way around. This is because discussing not only exposes people to new information but forces them to process it and elaborate on it, thereby solidifying its place in memory (Delli Carpini, Cook, & Jacobs, 2004; Eveland, Jr., 2004). Discussion is also important in exposing people to cross-cutting opinions, thereby theoretically enhancing deliberation. Those with broader exposure tend to be more civically engaged, but people are distributed across an array of social arrangements, some insulated from diverse opinions (Huckfeldt et al.,

2004). It was feared that the internet would further privatize people's leisure time, reducing the overall amount of discussion and democracy in America. But there is some evidence that online forums can also host meaningful deliberation, especially if one does not expect it to be exactly like face-to-face discussion (Dahlgren, 2009; Freelon, 2010)

Expression

Expression was, until the advent of the internet, largely considered in the context of interpersonal discussion. It was the rare person who had the means to express themselves to any larger audience. Social networking sites and other social media lowered publishing costs to zero and put users in touch with broad networks of contacts (Lupia & Sin, 2003). Now expression, particularly online expression, is considered its own variable with its own effects on cognition and civic engagement. In general, the more a person expresses themselves regarding politics and public affairs, the more likely they are to be civically engaged.

Broadly, in the same way that talk precedes action, expression can the first step in changing a person's self-perception from observer to participant (Bem, 1967). These effects can be observed before the actual expression so long as a person expects some future expression (Pingree, 2007). The argument is that formulating a message, whether it is actually transmitted or not, causes reflection and elaboration on information, an act that reorganizes information in the mind and transforms it into language (Greene, 1984). Once the message is transmitted, ones commitment to its content may be strengthened (Tetlock, Skitka, & Boettger, 1989). Social media are a main forum for such messages, and even relational use of social media can lead to political expression (Gil de Zúñiga, Molyneux, & Zheng, 2014). Message formulation, expression and reception fit into recently

proposed models of citizenship in which expression is central (W. L. Bennett et al., 2011; S. Coleman, 2008).

Media exposure/information gathering

The connection between media exposure and civic engagement has been a contentious one, though quite a bit of recent research has helped sort out the conditions and directions in which media exposure can have effects. Informational media use has long been associated with civic engagement (Lane, 1959; Verba & Nie, 1972; Verba et al., 1995). This started with measurements of how often people read newspapers (Lane, 1959), with the suggestion being that there's a close relationship between consuming political information and discussing it. The more people read, the more people talk, and vice versa (Lane, 1959, p. 282). At this point, Lane concluded that the content of newspapers, television and other media were roughly analogous, and the focus was on whether the media provided sufficient information about politics for citizens to make informed choices. Studies in this vein have continued, with a recent one finding that lower levels of newspaper use are connected to lower levels of participation (Tien-Tsung et al., 2008).

Later, as media began to differentiate and specialize, television was blamed for causing large declines in American social life because of the way it privatizes leisure time (Putnam, 2000) and offers so many choices (many focused solely on entertainment) that people can ignore or avoid political programming (Prior, 2003, 2005). Subsequent research has suggested that most people are not always so siloed in their media choices and that media effects depend on the type of media consumed (Norris, 1996; Shah, 1998). Again, informational uses are primarily tied to civic engagement. As discussed earlier, the same fears and counterarguments were raised as the internet gained popularity. The

Web provides an even wider array of choices than broadcast and cable television, which might make it even harder to find political information. But it also provides greater opportunities for people to discuss, express themselves and connect directly with politicians, perhaps enabling greater levels of participation.

This study adopts the position of many other researchers (chiefly laid out in Eveland, 2003, but also laid out in Neuman, Bimber & Hindman, 2011) that the medium itself is less important than its attributes, especially media content in the case of civic engagement. News content has been shown to be a critical part of how people view and interpret the world, largely by creating salience and knowledge (M. McCombs, 2004; Neuman, Just, & Crigler, 1992). The connection between informational media, knowledge and civic engagement is discussed at length in the following chapter, but for now it suffices to emphasize that civic engagement is enhanced by informational media use, including of various new media such as the internet and social media (Beaudoin, 2009; Fleming & Thorson, 2008; Gil de Zúñiga et al., 2012; V. Price, Nir, & Cappella, 2006; Sayre, Bode, Shah, Wilcox, & Shah, 2010; Scheufele & Shah, 2000).

Technological competency and access

Because knowledge and information are key predictors of civic engagement, one's facility in accessing and acquiring this knowledge is an important influence on participation. Seminal work in this area has been anchored by Norris's exploration of the "digital divide," or the gap in levels of civic information caused by overlapping differences in education and access to technology (Norris, 2001). While the internet can connect users to a wealth of resources of information and communication, both of which can lead to increased civic engagement, Norris contends that these resources are primarily available to those who are most likely to be engaged anyway. As a result, the

gap between the less-engaged and the more-engaged grows wider rather than shrinking. Research conducted using panel data found further evidence that the rise of the internet has at best maintained and at worst exacerbated gaps in access to information (Jennings & Zeitner, 2003).

Technical skill and competence have also been associated with information acquisition from the internet and mobile technology. Those who are more comfortable using computers and using the internet would presumably be better able to obtain and distribute civic and political information on those platforms, and this result was found in analysis of survey data in the U.S. and the Netherlands (van Dijk & Hacker, 2003). A study of mobile phone users found that those who felt more competent with the devices and used them for information exchange were more likely to be civically engaged (S. W. Campbell & Kwak, 2010a). This variable of competence is often linked with age and gender, whereas the variable of access is most often linked to education and income. Together, these studies suggest that access to new media and competence in using them can be factors in predicting civic engagement.

Civic Engagement in a Mobile Landscape

Several scholars have argued that the rise of internet has been a major factor (along with other societal changes) in reshaping the ways in which Americans participate in civic and political life (W. L. Bennett et al., 2011; Dahlgren, 2009; Dalton, 2008; Sunstein, 2009; Zukin et al., 2006). In some use cases, the internet is thought to be an impediment to civic engagement, while in others it clearly helps people get involved. Painting societal and media change with such broad strokes obscures the complicated reality in which many changes and forces interact to produce different effects for different groups of people. The internet has potential or demonstrated effects on

discussion, expression, partisanship, interest, knowledge, social connectedness, efficacy and information and relies heavily on technological competence. It's no wonder the digital changes the internet accelerated are often referred to collectively as a revolution.

Mobile media have similar or even greater potential to influence civic engagement. Indeed, some studies of earlier models of cellular phones suggest that mobile communication can be a boon for democracy (S. W. Campbell & Kwak, 2011a, 2011b). Smartphones change the game once again. They have been adopted as a faster rate than any consumer technology in history, proceeding at twice the rate of the internet boom in the 1990s (Farago, 2012). Interestingly, mobile growth rates are highest in developing countries, the very places targeted by critics of the digital divide as symbols of the internet's failure to reverse declines in participation. Smartphones are cheaper and more familiar than laptop or desktop computers, and their connections to the internet are no less powerful. Thus a key reason that mobile devices have potential to be at the center of a new revolution in civic engagement is that they are widely used. What's more, they are almost always in a person's possession, an affordance Ruston calls "ubiquity" (in Arceneaux & Kavoori, 2012).

Perhaps just as important is that mobile devices take most of the internet's capabilities (at least as relating to media and civic engagement) and add portability. Mobile connectivity allows access to information and social contacts at times and in places where it was not previously possible. To the extent that mobile devices can enhance communication, then, they have great potential to improve people's ability to work with one another to address public issues and participate in democracy. There is some evidence that this is already happening (S. W. Campbell & Kwak, 2010a; Yoo et al., 2015). The time is now ripe for a deeper look into what civic engagement is like in a mobile landscape.

As with every technology, there are likely to be tradeoffs. The purpose of this study is to examine how the affordances of mobile devices can affect information gathering and knowledge when people consume mobile news. This study is located at the intersection of several important predictors of civic engagement: media exposure, information, knowledge, and technological competence and access. How well do smartphones work as tools to provide people the information resources they need to participate in a democracy? What is unique about smartphones and the ways in which they are used that might explain any differences in engagement? This study takes up these questions with discussions of learning from media and mobile devices in the next two chapters. Following this, a model is proposed relating mobile news use, learning from news, and civic engagement. Finally, two surveys of U.S. adults provide a test of the model, and civic engagement in a mobile landscape is analyzed and discussed.

CHAPTER 3: LEARNING FROM THE NEWS

Citizens in a democracy require a basic level of information in order to participate in the governance of their country (Galston, 2001), and access to greater information resources is shown to increase civic engagement (Neuman et al., 2011; Zukin et al., 2006). All citizens do not need to be policy experts (Schudson, 1998), but there is a threshold of knowledge below which participation becomes difficult (Galston, 2001; Popkin & Dimock, 1999). Many people even see it as a civic duty to stay informed (Poindexter & McCombs, 2001). So if citizens need information in order to be civically engaged, where do they get that information?

There are two types of information that have been treated as predictors of civic engagement. The first is commonly called political knowledge or political information, which is simply what citizens know about politics and the political system. Measures of political knowledge typically include questions about current political officials or candidates and their stances on issues, political parties, and how governmental and political systems operate (V. Price, 1999). This type of political knowledge does not always have a direct and strong relationship with media exposure, primarily because much of the information included in these measures is general political knowledge that is taught in social studies classes. As a result, political knowledge is much more strongly correlated with one's education than with news exposure. Schools and families consequently are seen as bearing primary responsibility for providing this type of systemic information. In general, Americans have low levels of political knowledge, but in a seminal 1992 study were able to identify current presidential candidates and their stances on key issues (Delli Carpini & Keeter, 1996).

A second kind of knowledge, news knowledge, is the focus of this study. This knowledge involves information about current events and public affairs. In many studies news knowledge includes (and sometimes focuses exclusively on) current or recent political information, but may also include information about business, science, technology, consumer affairs, and so on. Pew Research Center prepares an annual news knowledge quiz to test the public's "news IQ," and include health, education and economic questions in addition to political questions (Pew Research Center, 2014a). News knowledge is logically associated with news exposure because news media are the primary source of information on current events. Therefore, news exposure is treated as a necessary but not sufficient condition for acquiring news knowledge. In general, media exposure has a positive relationship on news knowledge, but the relationship is sometimes weak given that education and interest play stronger roles in information acquisition (Dimitrova et al., 2012; Eveland, Jr. & Scheufele, 2000).

It is the stated goal of most news organizations to inform their audience (among other goals, including entertainment), and this can only mean that the desired result is for audience members to acquire and retain information presented in the news media. Learning from the news is therefore defined as the ability to recall information presented in news media after exposure to those media. There are several processes and factors that help determine whether and to what extent this learning occurs. The remainder of this chapter discusses the cognitive processes by which learning from the news occurs, followed by discussions of which characteristics of the consumer, the content, and the medium might enhance or detract from learning.

Processing media messages

Two major works have outlined the cognitive processes by which people learn from the news. They are Eveland's cognitive mediation model (Eveland, Jr., 2001) and Lang's limited capacity model (Lang, 2000). They are discussed here together because they both target the same cognitive processes, though sometimes with different terms, and arrive at substantially similar conclusions about what must occur for people to learn from media messages.

The first step in each of these models is exposure. A person must encounter the message with at least one of their sensory receptors, typically eyes and ears for media messages. As Lang describes, the information collected by these sensory receptors is parsed for important bits. These important bits are stored in working memory, and the rest of the information is discarded. What bits of information are stored in working memory depends on both voluntary and involuntary subprocesses. Information that is novel or causes alarm is involuntarily stored; people may also consciously choose to record additional information based on their goals (Eveland calls these motivations, using language from the uses and gratifications theoretical perspective). To borrow Lang's example, a person wishing to count how many people are wearing blue shirts will store information relating to shirt color (noting the blue shirts) but not hair color, or anything else, even though that information may also be observed. Thus, even though a person may be exposed to an entire media message, only the parts selected involuntarily or voluntarily for retention will be transferred to working memory. Lang calls this process encoding, because the brain is essentially sifting a pile of information and turning the important bits into information it can use. Much of the media message is ignored or at

least not stored, which likely accounts for people's poor performance on knowledge tests in general (Graber, 2001).

The second step is storage, or associating the encoded bits of information in working memory with other bits of information in long-term memory. This is the way the brain stores information, by connecting it to things already known. Thus, the more a person knows about a subject, the more easily new information in this area can be stored. Eveland calls the process by which a person searches for and connects old information to new information "elaboration," meaning that people who elaborate on a thought by connecting it with other thoughts are more likely to be able to retrieve that thought when called upon to do so. Storage is affected by similar processes, including the goals or motivations of the user. For instance, those who expect to be tested on the information presented are more likely to dedicate resources to storing it. It has been shown that messages triggering emotions are more effectively stored than those that do not (Lang, Dhillon, & Dong, 1995).

Finally, a person must retrieve information that has been stored. Their ability to do this depends upon what was selected for encoding and how well the information was stored (or elaborated upon). Given all these cognitive processes and the limitations of the brain in performing them, Graber talks about learning from media messages as if it's a miracle it happens at all (Graber, 2001). And yet, Americans know substantial amounts of information about political candidates and their stances, information that is primarily disseminated via mass media (Delli Carpini & Keeter, 1996).

There are two points most relevant to this study. First, learning is most likely to occur when a person intends to learn; that is, learning occurs when people are paying attention to news or have information-seeking motivations. Eveland finds a positive relationship between desires for surveillance and learning, and paying attention to news

and learning (Eveland, Jr., 2001). This suggests that the person's approach to media use, whether casually glancing at a television while passing through the room or sitting down to read the newspaper, can have dramatic effects on how well they learn. In fact, the same person may learn well during an attentive, motivated news session and later may learn poorly during a casual, incidental interaction with news. This is not to say that incidental news exposures do not amount to anything. Research suggests that even these are better than nothing (Tewksbury, Weaver, & Maddex, 2001), but all other things being equal, people should learn more during attentive news sessions than during incidental ones.

Second, learning is most likely to occur when a person is least distracted. Lang's model is called the "limited capacity model" because her discussion focuses on the resources the brain has available to allocate to encoding, storage and retrieval. At some level of incoming information, which may be different for different people, the brain exhausts its ability to encode and store it all. The more resources that can be dedicated to encoding and storage, the more a person learns. Thus distraction is a major factor in determining how well learning occurs. This manifests in studies of multitasking, where people make more mistakes when a distraction is presented, but also specifically relating to media multitasking or second-screening (Van Cauwenberge, Schaap, & Van Roy, 2014). Some media types are more subject to distractions than others, including television in particular. The TV may be on in the background while a person is making dinner or reading something else on a mobile phone, in which cases learning from the television content would be minimal. For textual media, exposure and attention are nearly synonymous because while they may be skimmed or browsed, textual media cannot be passively received (it must be read). This may account for the fact that several studies have found that textual media often are more conducive to learning than audiovisual media (Fraile & Iyengar, 2014; Neuman et al., 1992). The connection between distraction

and lower learning is a function of cognitive ability but also of time. The more time a person has to spend finding and focusing on the content, the less time they are able to devote to actually consuming and storing it. Thus, learning is most likely to occur when news media can be consumed with minimal distractions.

Taken together, the Cognitive Mediation Model and the Limited Capacity Model both suggest that the amount of time one spends with a message allows more thorough processing of it, which should increase learning. Neither of these models test time directly, however, choosing to focus mainly on motivations and post-exposure processing (including elaboration). Thus an important theoretical contribution of this dissertation is that it proposes a model of learning from news that centers on time spent with the content. It is expected that the length of time spent consuming news, which varies from platform to platform, will play a role in determining how well a person learns from the content presented.

Differences produced by reader characteristics

INTEREST

The terms interest, attention and motivation have all been variably used to describe some aspect of the desire to consume specific media content. When this desire is in play, it is among the most powerful predictors of learning. (The same is true for civic engagement; when people are interested in participating, they are much more likely to do so.) Interest is at least partially inherent in individuals, because an issue's salience may change from person to person (Weaver, 1980). Interest is also partially controlled by involuntary responses meant for self-preservation, which accounts for the high interest in negative messages (Geer, 2008) and views of news consumers as conducting "surveillance" (Eveland, Jr., 2001; Schudson, 1998). In this view, people are alerted to

news that is alarming as well as news that is interesting, so there is still room for disinterested publics to get information. But a person who is interested in a presidential campaign, say, will learn much more about that campaign than someone who is not interested in it, simply because the brain is working to encode and store more information about the campaign. Studies have found that seeking news, such as when using a search engine, is associated with higher levels of knowledge (Park et al., 2009; Stephens et al., 2014; R. Wei, 2008). Thus news consumers may have varying levels of interest in different news items and are likely to be differently informed.

KNOWLEDGE GAP

The knowledge gap hypothesis proposes that those with higher socioeconomic status acquire information at a faster rate than those with lower status, meaning that as new information diffuses through a society, the gaps in knowledge between those who know the most and those who know the least tend to increase rather than decrease (Donohue, Tichenor, & Olien, 1975; Tichenor, Donohue, & Olien, 1970). Researchers have offered several reasons that socioeconomic status might influence one's ability to acquire information, including their social connections and the fact that many mass media target them through content and advertising. But the factors most important to this study center on education and information. A person who is better educated is expected to have more skills in knowledge acquisition. What is more, a person who is better educated has a larger existing store of knowledge, which as explained above is essential in forming associations with new information. Those who can more easily connect new information to stored knowledge are more likely to store that new information, or learn it. Thus, knowledge gap theory is primarily useful in explaining the connection between education and news learning.

The effect of education on learning from the news is dependent on other factors as well, including interest or motivations, media use, and involvement in politics. Higher interest or attention to news tends to moderate the relationship between education and knowledge, such that those with less education can keep up with their more educated peers if they are interested and motivated to do so (Kwak, 1999). Higher levels of television viewing (Eveland, Jr. & Scheufele, 2000; Jerit, Barabas, & Bolsen, 2006; Kwak, 1999) and newspaper readership (Fraile & Iyengar, 2014) have been shown to decrease knowledge gaps. This is logical because one of the contributors to knowledge gaps is different levels of exposure, so when those differences shrink, so does the knowledge gap. In the case of television, researchers have argued that this medium provides a more accessible entry point for people to learn about things they are not interested in, primarily due to television's engaging audiovisual presentation (Neuman et al., 1992).

Even so, more is not always better. Knowledge gaps depend on the overall "information environment" (Jerit et al., 2006), and as more media offer more choices, knowledge gaps are expected to increase (Prior, 2005). This is because as media diversify, those uninterested in political or hard news coverage can more easily act on that preference and tune it out. As Prior explains, people naturally have diverse tastes in media and diverse interests in news. The more people are able to exercise these preferences, the less likely it is that they will converge upon any sort of common knowledge. What is more, certain kinds of knowledge (particularly political knowledge) are associated with power and participation in a democracy. So as people who are uninterested in politics avoid political news and those who are interested in politics follow it closely (as they can in an information-saturated, high-choice media environment), gaps in political knowledge are exacerbated.

NEWS CONSUMPTION BEHAVIOR

Several scholars and observers have identified a particular news consumption behavior that appears to be detrimental to learning from the news, and they have variably called it "news grazing" (Bucy et al., 2014; Hardy & Jamieson, 2011) or "news snacking." The idea is not a new one. The British Journalism Review lamented the "news snacks" some outlets were offering in a 1993 article (MacArthur, 1993). In a 2005 report of the Carnegie Corporation, in which Merrill Brown writes, "How news executives today deal with the ways news is consumed, in the form of an image here, an instant message there, a cell phone text message headline, a web portal story or a newspaper shoved into a passing hand while racing to the bus, will say a great deal about the future of news as we know it" (M. Brown, 2005). In 2007, Wired magazine wrote about "snack culture" specifically relating to media consumption (Miller, 2007). Not only do technologies such as DVRs and mobile phones give people flexibility in when they consume media, they also give people control over how much to take in. The Internet is particularly well suited to news grazing because of its convenience and the control it offers (Dessauer, 2004). Young adults "nibble away at the news, whenever and wherever they feel like it. They prefer frequent news snacks to regular full meals. They take the news, shape it, comment on it, and exchange it with their 'friends' on Facebook or via Twitter" (Sauvageau, 2012).

This cultural observation is backed up by several research studies. Qualitatively speaking, young news consumers have described quickly checking headlines in order to stay on top of the news, saying that immediacy is more important than quality (Costera Meijer, 2007). Costera Mejer points out that this behavior "does not lead to solid knowledge, but to 'impressions.'" Another qualitative study found that people consume online and mobile news in short bits and said people appreciate the convenience of these

"news snacks" (Gutknecht & Dörflinger, 2009). Again, the goal was not deep learning but a superficial knowledge of what's going on, or an attempt to keep up on the news. Surveys of U.S. adults have found that the percentage of people who say they check in on news from time to time is rising, now constituting a majority (Pew Research Center, 2012). Pew calls these people "news grazers." Using Pew data, other researchers have shown that grazing is negatively associated with knowledge and civic engagement (S. E. Bennett, Rhine, & Flickinger, 2008; Hardy & Jamieson, 2011; Morris & Forgette, 2007). News grazing in these studies was considered as primarily occurring while watching television, as people can easily switch channels with their remote control. But as mentioned earlier, the Internet is particularly well-suited to snacking on the news (Dessauer, 2004). It is therefore important to examine how news snacking has changed in the mobile landscape.

Differences produced by content characteristics

EDITORIAL CUES

Educational psychologists have suggested that people learn better when they have the ability to customize the content as they wish (Young, 1996). The theory is based on the idea that people learn in idiosyncratic ways and will be better able to encode and store information if they are able to process it in a way familiar or comfortable to them. On the contrary, other research has found that, at least in a news setting, readers crave guidance. One experiment varied the level of user control in a Web design by giving some users complete freedom over navigation within an article, while others were "advised" on what to read next. The advisement group fared better on a post-exposure knowledge test (Eveland, Jr. & Dunwoody, 2001). Another study found that those exposed to a traditional television broadcast remembered more of it than those who were allowed

control over the content (Southwell & Lee, 2004). Furthermore, a study of television content found that producer-controlled changes in content or topic, similar to receiving advisement, were followed by increased recognition and recall (Wise, Lee, Lang, Fox, & Grabe, 2008). In earlier comparisons of platforms, printed products are considered to be more linear and to allow users less control — though it is possible for readers of a magazine or newspaper to read stories in any order they choose, front to back is the structural norm, whereas jumping from link to link is the norm online (de Waal & Schoenbach, 2008; Eveland, Jr. & Dunwoody, 2002). Studies of this element of control and linearity have found that newspapers tend to produce better learning outcomes than online media (Althaus & Tewksbury, 2002; de Waal & Schoenbach, 2008; Eveland, Jr. & Dunwoody, 2001; Santana, Livingstone, & Cho, 2013). This is primarily because an ordered structure of the news content informed by editorial choices is more likely to lead to learning than an open-ended pile of content. Users may enjoy choosing what they read next, but that is not the method most conducive to learning.

Closely related to these concepts of control and linearity is that newspapers and digital media might make use of different kinds of editorial cues — that is, different levels of advisement from the newspaper's editors about what is important to read. In agenda setting research, prominence is a key aspect of conveying salience to the audience (Kiousis, 2004; M. McCombs, 2004; Roberts, Wanta, & Dzwo, 2002). By using headline size, placement near the top or left of a page and adding graphical elements, media editors convey the relative importance of items displayed. So it is not just the level of structure or organization imposed by the editors, but also the visual cues that help a reader navigate a news website. Research suggests that choice in an online news setting is not pre-determined but can be influenced by cues (Knobloch-Westerwick, Sharma, Hansen, & Alter, 2005). Returning to Lang's (2000) limited capacity model, any of the

navigational choices a consumer has to make while using news content use up resources that could have been dedicated to learning. Therefore the more editorial cues, or the more advisement, users perceive on the platform, the less people must dedicate their own cognitive resources to making navigational choices, and therefore the more easily they will be able to encode and store the information presented.

PRESENTATION

The modern media organization gathers information in droves. Observers have often marveled at the amount of information now easily available to the public, especially online. At first glance, it might stand to reason that a larger supply of information might enhance learning, or at least expand what can be learned. But more is not always better, and people can be overloaded with information (Chyi, 2009). Especially when presented with a large amount of information, people look to reduce cognitive load (Lang, 2000). This is because the amount of information available in any environment is usually greater than the mind's capacity to process it, so people resort to shortcuts. Research suggests that those under higher cognitive load learn less (Mayer, Moreno, Boire, & Vagge, 1999; Tuovinen & Sweller, 1999). In a news setting, one study suggests that some cognitive load is good because expending this effort focuses attention, but there is certainly a point at which too much is too much (Niederdeppe, Davis, Farrelly, & Yarsevich, 2007). It is therefore expected that learning will increase as cognitive load is reduced.

Online news sources, with their virtually unlimited space to house news content, have focused on offering as many options as possible on their home pages. These landing pages often feature dozens of links to stories and many more navigational links to the news content. In this circumstance, it is not surprising that a person must first spend some time scanning and browsing what is on offer, and then spend some time actually reading.

This is something of a zero-sum game, especially when thinking of learning activities as following a limited-capacity model. Given an amount of time to get news, a person might spend some time deciding what to read (whether based on interest, relevance, or other factors) before they select an item to read. More time spent scanning or browsing will result in less time reading, and vice versa. More time reading, logically, should lead to greater learning, and research supports this conclusion (Eveland, Jr. & Dunwoody, 2002).

Eveland and Dunwoody (2002) call this browsing process "selective scanning." Selective scanning may be influenced by each of the two design attributes discussed above. Readers experiencing high cognitive load may use selective scanning as a coping strategy (D'haenens, Jankowski, & Heuvelman, 2004; Eveland, Jr. & Dunwoody, 2002). The greater the amount of information presented (in the case of the web, the more headlines or navigational links presented), the more a user must filter the information and choose which stories to read. Users are not always good at this decision-making process (Milheim & Martin, 1991) and may end up missing important content as they become more selective in their consumption choices. It is therefore likely that greater cognitive load is associated with greater selective scanning (and less recognition and recall).

Editorial cues are also related to the level of selective scanning. Relying on editorial cues for guidance in what to read not only outsources that decision-making process (reducing cognitive load) but also is likely to reduce the perceived need to browse. If it is immediately apparent which stories are most important, readers are likely to spend less time scanning and more time reading. It is therefore likely that greater editorial cues are associated with less selective scanning (and more recognition and recall). Thus it is not just the information itself but also how it is presented among other offerings that can affect how well a person is able to remember it.

Differences produced by medium characteristics

DIGITAL DIVIDE

The digital divide makes a similar proposition to the knowledge gap hypothesis, but for different reasons. Again, we see different segments of the population acquiring information at different rates. Whereas in knowledge gap theory this is largely tied to education and social connectedness, the digital divide is caused by differential levels of access to and facility with digital technology, particularly computers and the internet (Norris, 2001). Digital divide theory works against two major assumptions about the Internet. First, many see the internet as providing access to such vast stores of knowledge that it could lessen knowledge gaps that had existed under traditional media. What is more, the openness of the internet and its ability to lower publishing costs have been hailed as potentially democratizing factors that would lower knowledge gaps. At least at the turn of the millennium, neither was the case. Access to the internet required the purchase of a personal computer and a connection to the internet, neither of which was cheap. Only the most developed countries, and the most developed areas within those countries, even offered broadband internet connections to common citizens. Thus, Norris (2001) found that those who had access to the internet were those who already had the highest socioeconomic status and were already most likely to have higher levels of knowledge. Thus digital technology exacerbated knowledge gaps, she found. Further research of the internet's effect on knowledge corroborated these findings (Jennings & Zeitner, 2003).

The issue of access has been lessened to an extent by the spread of mobile technology, but the issue of technological proficiency remains. Any technology requires that new users overcome some hurdles during the adoption process (Rogers, 2010), with ease of use being a primary consideration for many people (Venkatesh, Morris, Davis, &

Davis, 2003). Thus the more complicated or inconvenient a new technology is, the less conducive it would be to increasing the general public's levels of knowledge.

STUDIES COMPARING MEDIA PLATFORMS

Comparing media platforms is a common research practice in mass communication studies. Television and newspaper appear to have different agenda setting strengths (M. McCombs, 2004) and different learning outcomes (Neuman et al., 1992; Yang & Grabe, 2011). But even when both media are textually based — as in newspapers and websites of the early 2000s — there have been observable differences in learning (Eveland, Jr. & Dunwoody, 2001, 2002) and agenda setting (Althaus & Tewksbury, 2002; Santana et al., 2013). This is true even in experimental conditions where content is held content and only its structure and presentation are varied. Why is this the case?

The answer lies not in the platforms themselves but in the structural norms that govern how content is presented there — that is, each platform bears a "mix of attributes" inherent to those platforms that influence how content is presented and received. These attributes may in turn influence how well people learn from different media platforms. So what attributes seem to be most important to learning from the news?

Multimodality

The number of media in which news is presented can affect people's interest, attention and processing capabilities. Textual media are seen as being least attention grabbing because they cannot be passively absorbed and, while they may include photographs as visual elements, are generally less visually engaging than television. Radio news can be passively listened to, but still engages only one sense. Television engages two senses simultaneously, and a web page may combine all of these elements in one location. Thus multimedia presentations may be considered the most engaging, while

textual media are least. Research suggests that especially for issues where interest is low, television is better at capturing people's attention and therefore leads to increased learning (Neuman et al., 1992). It has also been suggested that because television provides multiple information streams simultaneously, this can create efficiencies within the mind, or one stream (visual) might reinforce the other (audio) (Graber, 2001). Both of these should increase learning. But again, there comes a point where too much distraction from multiple simultaneous information streams inhibits learning (Van Cauwenberge et al., 2014).

Linearity and structure

As discussed earlier relating to editorial cues, the more linear and organized a platform's content is, the easier it is for people to understand what is important and to decide what to consume. Studies have suggested that linearity is responsible for increases in learning (Eveland, Jr. & Dunwoody, 2002) while increased user control or an open-ended structure is detrimental to learning (Eveland, Jr. & Dunwoody, 2001; Southwell & Lee, 2004). For physical textual media such as newspapers and magazines, front to back is the structural norm, while online textual media encourages jumping around. A television or radio broadcast is structured linearly and offers little user control.

Content density

The more choices a platform presents for the user, the more likely it is that the user will have to spend some time navigating the content offered (selective scanning) before choosing something to consume. This is primarily an issue in online settings, where there is an unlimited amount of space, and so news web pages are crammed with links. A newspaper front page might offer only five or fewer stories, and a television broadcast includes a similarly small number of segments. Online news, however is not

constrained by space and so the initial home screen offers everything at once, essentially. This is likely to produce higher cognitive load and lower learning.

The preceding sections have discussed differences in platforms in an effort to isolate as much as possible the effects of the platform's attributes. In the real world, however, it is extremely difficult to fully separate content and platform. As an example, television news in general offers less depth than newspaper news (Fraile & Iyengar, 2014; Neuman et al., 1992) and television and newspaper news agencies frequently choose to cover a different mix of stories. So while the audiovisual platform that is television, given the discussion in this section, might be the more engaging medium while also offering structure and editorial guidance, television news content is often less informative than newspaper content. As a result, most studies find that frequent newspaper users are better informed than frequent television watchers (Fraile & Iyengar, 2014; Neuman et al., 1992).

Learning from mobile news

The Limited Capacity Model of Mediated Message Processing posits that a series of cognitive processes draw upon limited mental resources when turning media messages into knowledge in a person's mind. The model sees the limitations imposed by one's own mental capacity and engagement, but does not consider the role of time. Eveland's work fills this gap somewhat, by suggesting that the more a person connects one idea to another (elaboration) and the less a person browses for messages of interest (selective scanning), the better learning will be. In both cases, additional time spent with the message itself (whether through cognitive procession or elaboration) is theorized to improve learning, though time isn't directly measured in either model. Additionally,

Eveland calls for studies of different media platforms on the assumption that processing may vary from platform to platform.

Communications research has seen decades of studies comparing learning from television and newspaper content, and at least a dozen years of studies adding online news sources to the mix. It is not yet clear how mobile platforms influence learning, but this dissertation aims to fill that gap. While 84% of U.S. households own a computer (Rainie & Cohn, 2014), 90% of American adults own a cell phone (Pew Research Center, 2014b). More people access the internet via a computer than through smartphones, but for a growing segment (34%) of Americans, the smartphone is their primary internet portal (Duggan & Smith, 2013). As will be discussed in the next chapter, there is reason to believe that mobile devices possess a mix of attributes that make them different from any other media before them, and therefore mobile devices will have different effects on news learning and civic engagement.

CHAPTER 4: THE MOBILE NEWS LANDSCAPE

The ways in which people get the information they need in order to participate in a democracy are changing. For years researchers have studied how the American public uses the Internet to get news and political information, but now habits are changing again, and rapidly. Mobile now accounts for more than half of all internet traffic, including substantial portions of traffic to news websites (Kirkland, 2014; O'Toole, 2014). The time is ripe, then, for a close examination of mobile devices and the ways in which they intersect with news and information to affect civic engagement. What potential do mobile devices offer for changing the information environment? How do news organizations use them to disseminate information? How do people use these devices for news?

This chapter takes up these questions by discussing the mix of attributes inherent in mobile devices in order to determine how these attributes affect news organizations and their audiences. Mobile presents both opportunities and challenges for news organizations as they try to deliver content on a new platform and make money doing so. The ways in which news organizations respond to these opportunities and challenges in part determines what news is available to audiences. Consumers, in turn, make choices and develop habits with consequences for their news knowledge, which is an essential resource for civic engagement. This chapter first discusses mobile devices and their attributes and affordances as a platform before turning to news companies and finally to news audiences.

Mobile devices

Mobile devices are defined in this study as smartphones and tablets that have wireless data connections and that use mobile-specific operating systems capable of running apps. These devices are actually portable computers (weighing a pound or less),

but are distinguished from ultrabook, laptop and desktop computers by having weaker processors that run mobile-specific operating systems (iOS, Android or Windows Phone are the most popular) not capable of running the full-featured desktop programs found in the Macintosh and Windows operating systems. Mobile devices also rely on trimmed-down web browsers that sometimes cannot display full-featured websites. Consequently, mobile devices use applications ("apps") specifically developed for their mobile operating systems to provide functionality and web browsing. Studies suggest that mobile device users most often use these apps rather than the web browser to access web content on a mobile device (Dixon, 2014; Khalaf, 2014; Lipsman, 2014).

Mobile devices are distinguished from cellular phones in both design and function. The primary difference is that mobile devices run a mobile operating system more aligned with computers than with cell phones. Cellular phones can make and receive voice calls, send and receive text, video and audio messages, and in some cases check email and browse limited, proprietary Web offerings. Mobile devices, in contrast, offer all of the same communications functionality but also allow the user to access the Internet at large, displaying actual web pages in a web browser, albeit reformatted for mobile in most cases. Furthermore, through apps, mobile devices offer the ability to create and edit documents, audio, photos and videos; conduct banking and shopping errands; and consume all manner of multimedia content. These additional features enabled by advanced mobile operating systems are what make mobile devices "smart."

Mobile devices also have large screens compared with cell phones. Smartphones have screens measuring about 4 or 5 inches on the diagonal; Tablets have screens measuring between 7 and 12 inches on the diagonal; and devices in a crossover category between the two, with screens measuring about 6 or 7 inches on the diagonal, have been called phablets, a portmanteau of phone and tablet.

The rise of mobile devices in the United States is the result of several phenomena. People have always wanted to communicate on the go, and have used a wide range of technologies to do so. Citizens Band radios, pagers, car phones, cell phones and PDAs are all predecessors of modern mobile devices. One feature common to all of them is that they send and receive communication wirelessly by using some segment of the broadcast spectrum. The broadcast spectrum in the United States is regulated by the Federal Communications Commission because it is seen as a public resource that must be managed. Otherwise, the argument goes, those with the resources to produce the strongest signal would crowd out all other signals on the spectrum. Thus competition for the right to broadcast on a certain frequency is controlled by the FCC. This includes spectrum allotted for a wide range of wireless communication, including commercial radio, commercial television, and cellular voice and data transmission.

The commission has a history of operating slowly and out of step with technological developments when it comes to spectrum allocation (Hazlett, 2012). Its pattern is that long delays in regulation block economic development, but eventually new segments of the spectrum are opened for use and frenzied economic activity follows. When this happens, Hazlett (2012) says, new services arise, prices fall, and mobile use skyrockets. To use an example pertinent to this study, 3G (for third generation) mobile data networks were being installed in the U.S. in the early 2000s. These networks had to carry data speeds of at least .2 megabits per second, and it took several years for them to be widely available. It was on these networks that the first smartphones were introduced, with Apple introducing the iPhone in 2007. Fourth generation networks (using different segments of the spectrum from 3G networks) were introduced in 2008 but have only been widely available in the U.S. since 2010. Not coincidentally, and in keeping with Hazlett's described pattern, mobile use skyrocketed when this new broadband spectrum was

available for use. In 2010, mobile data usage overtook voice usage of cellular networks, and from 2011 to 2012 mobile data usage doubled (G. Price, 2012). Analysts suspected this surge was driven mostly by video consumption. In other words, people had gone from holding their phones up to their ears to holding them in front of their faces.

MOBILE DEVICE USE

By all accounts, adoption of mobile devices has sped along more rapidly than most other technologies (Farago, 2012; Pew Research Center, 2014b; G. Price, 2012), with about a quarter of the world's population using a smartphone at least monthly in 2014 (eMarketer, 2014). In the United States, the setting for this study, about two-thirds (64%) of adults own a smartphone, which is almost double the rate (35%) of just four years earlier (Smith, 2015). The same Pew survey found that smartphone ownership is highest among young adults and those with higher incomes and more education.

People use their mobile devices primarily for communicating, but accessing the internet and email follow close behind. Over the course of a week, Pew contacted people twice a day to ask how they had used their phone in the hour preceding the survey. Text messaging (97%), voice or video calling (93%), internet use (89%), and email (88%) were the most common uses. Social networking sites, video and music were especially popular with younger users (Smith, 2015). The category of "internet use" is too unspecific to be useful because nearly everything that happens on a smartphone involves transferring data via the internet (including, for many users, text messaging). But there are some clues about how this internet usage occurs. For instance, more than two thirds of smartphone users (68%) said they use their phone to keep up with the news. About 62% said they have used their smartphone for getting information about health, and 57% to do online banking (Smith, 2015).

As Farman (2012) and others suggest, adoption of new technologies is not only about the technology itself but also about societal changes that determine whether the technology "fits" with us (Rogers, 2010). A key coincident development has been the rise of social media, and for many young adults their phone is for Facebook. Social media are such a dominant use of mobile devices that it's hard to separate the two completely. Social media depend on mobile devices for that always connected feel, and social media are among the few applications with a broad enough appeal to drive adoption and use of mobile devices. This is important given some of the affordances discussed below, but for now it is enough to emphasize that smartphone adoption has coincided with the popularity of social media and social networking sites like Facebook and Twitter. People have always wanted to stay connected to each other, but the desire to constantly check in with others and share what you are doing right now is fed and enabled by the combination of social media and mobile devices.

MOBILE AFFORDANCES

The capabilities of a technology that enable certain activities (while not requiring them) and provide potential or opportunities for use have been called that technology's "affordances" (Arceneaux & Kavoori, 2012; Graves, 2007; Hutchby, 2001). Most of the things that one can do using a mobile device (make calls, use the internet, check email, post to Facebook) can be done using other means. So it is important to ask, what is different about mobile? Are there any unique affordances that differentiate the platform and the way people use it from the way they use other technologies to accomplish similar goals? And if there are differences, what might they mean for news? The following affordances are selected and adapted from analysis done by Ruston (in Arceneaux & Kavoori, 2012).

Ubiquity

The first unique property is that, because of their size and portability, mobile devices are always with you. People carry their smartphones in pockets or purses and, just like cell phones, keep them constantly at hand. Whereas cell phones made voice and text connectivity easily available on the go, smartphones make the internet and many key computing functions mobile as well. Smartphones in particular go with you nearly everywhere, which cannot be said even for the most portable laptop computers.

A second sense in which mobile devices are said to be ubiquitous is that they can do everything. Smartphones offer nearly all the functionality of a computer, camera, camcorder, audio recorder, cell phone and indeed many non-digital devices, all in one. Your phone can be a calendar and planner, a baby monitor, a cookbook, gaming device, and personal assistant. Apple's marketing slogan of "There's an app for that" implies that your smartphone can be of use in accomplishing any task, digital or no.

In the case of news, the fact that people always have their devices with them means that they are more likely to check in on news throughout the day, and indeed, "checking" is a major habit on mobile phones (Oulasvirta, Rattenbury, Ma, & Raita, 2012). This means that mobile users might arrive at news with more monitoring or surveillance motivations rather than information seeking or civic duty motivations. Headline writing has become something of a science in order to entice these scanning users to open a story and read it. What is more, the fact that mobile phones can do everything means that users are likely to have access to multiple news sources on a single device. The number of apps on a phone is limited only by the phone's storage, so people could have apps from a dozen different news sources. More likely, however, is that people rely on services like Flipboard, Pulse, Reeder, and others to collect news feeds from around the Web and aggregate them into a single personalized news report (Beam,

2013; Doctor, 2013). This means that while news organizations supply the content, they may not have control over how it is presented or consumed.

Locativity

Mobile devices perform calculations using signal strength and time between send and receive to analyze their connection to multiple cell towers and determine, within a few meters, the location of the phone. This feature is called GPS by many users even though it has nothing to do with the Global Positioning System that uses satellites and functions all over the globe, not just where there is a cell signal. Mobile devices combine this positional information with data collected from their internal accelerometers and compasses to determine direction and interpolate movement between points to a high degree of accuracy. The system is good enough that in most urban areas, smartphones can be reliably used for turn-by-turn directions while traveling. A mobile device's location can be used in a variety of other applications as well, including to "check in" when visiting a business or museum, to take a self-guided tour of a national park, to get traffic information, to track fitness, and keep track of children. While other devices may offer the user location information, it is the integration with these other applications that makes mobile devices' locative capabilities unique.

There might be several ways for news organizations to use location information (Goggin, Martin, & Dwyer, 2014), but so far they are not meeting that potential (Schmitz Weiss, 2013). News uses of location information focus primarily on traffic and weather, with some organizations dabbling in crime-related information. Mapping news events is also common, but beyond finding out how close they are to a news event, this does not change what the user sees based on their location. That is the promise of "augmented reality" applications that combine location data with data from the camera to present

relevant information based on a person's position. As an example, the phone knows its user is at home and that it is now morning, so it can provide the user with the amount of time it would take to get to work. Unless, of course, the user has used their phone to check in for an upcoming airline flight, in which case the phone displays how long it will take to get to the airport. These uses are already in place, but news companies have not fully taken advantage of them.

Personality

Mobile devices are more personal than other digital technologies, meaning that people feel closer to them and they are less likely to be shared. People might read "the newspaper" and check "the web," but the mobile device they use is called "my phone." This is partly because of their portability and the fact that most people keep them constantly on their person – in this sense, mobile devices are more like wristwatches than computers. Ruston (2012) suggests that some people see mobile devices as having a cyborg-like quality not found in other web-connected devices; that is, the phone is considered closer to or even part of the body. People's phones are accessorized and used in highly individual ways, and they are not often shared among users.

News organizations take advantage of this fact by offering users the opportunity to customize the news they receive or even customize the appearance of the app they use. People say they enjoy these features, but in reality do not use them much or are confused by them (Kormelink & Meijer, 2014). Users are able to create highly customized news feeds using the aggregation apps or algorithms mentioned earlier, but there is concern that this filtering leaves out important information. In other words, what you may think is an objective portrayal of the outside world may have been filtered and prepared especially for you based on your input to search engines and social media (Pariser, 2011).

News companies therefore have to figure out how to get through these filters so that their content is actually viewed by mobile audiences.

MOBILE AND THE NEWS

Taken together, the attributes of mobile devices covered above have several implications for news. Mobile devices change how journalists collect and produce the news, how it is distributed to consumers, and how those consumers receive and process that news. The following sections focus on these changes, first from the perspective of news organizations and then from the perspective of news audiences. Much of the talk about mobile devices in general is optimistic, as is common with new technologies. It is true that mobile offers many new capabilities and new opportunities for news. But the reality is that, at least in the case of news, mobile is still under development and significant challenges remain.

Producing mobile news

Mobile devices have changed the way news works. Reporters use smartphones and tablets as reporting tools, freeing them from their desks and helping them file from the field. Mobile makes news more available, attracting an audience at different times and in different spaces than before, challenging newsmakers to distribute new forms of content and updates. This section details developments relating to news production and distribution using mobile devices, and then discusses the challenges of making money from mobile news. Overall, news companies and advertisers are still adapting to consumers' growing preference for mobile devices, but to some extent events are unfolding in a similar fashion to when news companies went online. The result is that, thus far, mobile audiences and mobile revenue have not made up for declines in audience and revenue seen in traditional media.

PRODUCTION

In the early 2000s, the news industry was touting a new development — the backpack journalist. With about $15,000 worth of equipment, including a laptop computer, handheld video and still cameras, and an audio recorder, one reporter and his backpack could file any kind of story from anywhere with an internet connection. This was seen as a boon for multimedia reporting of the type the Web seems to demand, and it could be delivered faster than ever.

A few short years later, all this technology was available in a device that could fit in a pocket and cost less than $600. Well, almost — in the first smartphones, video was not an option, and the camera was worse than most point-and-shoot consumer options. But subsequent generations of mobile devices fixed these problems and kicked off a sort of technological arms race to have the fastest, most capable palm-sized device available. Smartphones now shoot full-HD video, compete with consumer cameras on image quality and have more than enough horsepower to edit these media before transmitting them via a cellular data connection as fast as most home broadband services.

Journalists have taken advantage of these developments to adopt smartphones rapidly and alter their work routines. A national survey of U.S. newspaper journalists in 2012 showed that more than three-quarters of them owned smartphones, well ahead of the adoption rate for the American public (Molyneux, 2014a). Most of these journalists used their smartphones as part of their job. A majority felt that their smartphones made their work better. They said smartphones allow them to do more work away from the office — which was great when covering a town hall meeting, but it also means their bosses are asking for more work in off hours. Journalists who owned smartphones were more likely to produce multimedia content, including photos, video and audio, than their non-smartphone counterparts. This suggests that the smartphone makes easier the type of

multimedia reporting that many newsroom supervisors (and news audiences) are demanding.

Journalists also reported that having a mobile device and being out of the office more often allowed them to connect better with both sources and audiences. They were better able to stay in touch (rather than sitting at a desk waiting for that phone call or email) and were able to maintain a steady dialogue with readers through social media. For many journalists, this has meant developing a personal brand by talking about themselves and their work as they establish relationships with readers (Molyneux & Holton, 2014; Molyneux, 2014b). Organizations are now pushing back and establishing social media guidelines (Opgenhaffen & Scheerlinck, 2014) that require journalists to act professionally and as representatives of the company even on their personal social media accounts.

The unfortunate downside of all this is that consumers are not seeing many new kinds of content as a result of journalists' adoption of mobile devices. Journalists may have new production routines or use new tools, but they are still largely tied to the production requirements of the parent organization, be it a newspaper or a broadcast station. If anything, mobile has created efficiencies within news organizations, allowing them to cope with an increasingly small workforce. Thus if reporters are taking photos and video, the visual staff might be smaller, or if photographers can write short stories from their tablets, it may not be necessary to send a reporter. Still, much work remains to be done to integrate mobile devices into newsrooms (Westlund, 2011), particularly with respect to content management systems. Getting material off the phone and into the paper is not always as easy as it sounds.

Another concern is that overreliance on mobile devices might lead to inaccuracy. Part of this is tied to the rush for immediacy, posting instant updates without time for

editorial review. In this case errors are attributable to the speed at which news is produced, something that mobile has enabled but that is conceivably a problem in all media. But inaccuracy is also a complication of the devices themselves, which have tiny keyboards with no tactile feedback and sometimes imprecise auto-correct features. Also, verification of information received via text message or social media was one of the main concerns among journalists surveyed (Molyneux, 2014a).

DISTRIBUTION

Mobile has introduced some unique challenges for newsrooms deciding how best to distribute their content. A newspaper is a bundled, home delivered package. The website offers more flexibility, but in large part has still been treated as a destination with a bundle of content on offer. Mobile, however, offers even more options. Newsrooms have had to decide whether to present their content on a mobile site optimized for handheld browsers, or in an application of their own make, or in applications made by third parties. Many have opted to be in all three places, hoping for the widest audience possible. Many make multiple specialized applications for different content offerings — for instance, As of April 2015, the New York Times Company offered six apps in the Apple App Store covering news, crossword puzzles, travel, homes and more.

Unfortunately for digital media supervisors, this approach creates problems. In many newsrooms, news is produced once and subsequently fitted into three or more digital presentations. In many cases, this process is automated, wherein the text of a news story is written by a reporter and placed into a content management system where it is edited. The system is then able to push the text to the desktop website, the mobile website, and mobile apps. Larger news organizations like the New York Times, The Washington Post, the BBC, and CNN have mobile editors, but most smaller news

organizations do not (Bilton, 2014). Observers have rightfully criticized digital offerings as repackaged print or broadcast content, calling it “shovelware” (Ghersetti, 2013). The largest news companies in the country have done comparatively well in producing their own apps and garnering digital audiences, but regional and even smaller papers have had much less success. Often these low-budget apps aren’t attractive or fully functional, and perhaps worst of all, don’t monetize the content (d’Heureuse et al., 2012; Papert, 2012).

Third party news distribution apps are on the rise, thanks to a few factors. First, convenience and immediacy are two forces driving mobile adoption, which has led to developers creating news apps that provides a single outlet for all content by aggregating news from multiple sources. Apps like Apple’s newsstand have attempted to collect offerings from mainstream media organizations into a single, streamlined service (while also, critically, monetizing them), but they have not seen widespread success. Free news aggregator apps like Pulse and Reeder have dominated this development, which is not surprising considering adoption is driven by convenience rather than quality. Second, news-seeking and news-aggregating algorithms have improved to the point that users can tailor a news feed using complex keyword searches or simple “like” and “dislike” buttons. Apps like Flipboard, Zite, Prismatic and others use a combination of user input and recommendation algorithms to attract large user bases without producing any of the news content themselves. Many news companies have partnered with these companies rather than seeing them as competitors. As a result, readers can use a New York Times subscription within Flipboard, for instance, to see Times stories along with other news sources of interest. Finally, social media are a key entry point for many people, especially young people, to get news (M. Anderson & Caumont, 2014; Mitchell, Jurkowitz, & Olmstead, 2014). So again, news companies including the New York Times recently announced partnerships with Facebook to have their news content appear on Facebook —

the user never has to visit nytimes.com in order to see the Times' content (Somaiya, Isaac, & Goel, 2015).

In summary, the approach has been to be in as many places as possible, seeking audiences in as many ways as possible without, in many cases, considering monetization (Westlund, 2014). The cellular data network that was built for mobile devices allows other devices to connect as well (and still more devices are being connected to the internet via cheap home networking). Some observers call this development the "internet of things," where your thermostat, fridge, car, watch, and more are connected to the internet and capable of delivering news updates. This development is still in the early stages, but so there are already questions about the user experience with these devices, how news can be distributed there, and frankly whether anyone is interested in news on their fridge.

All of these developments get news in front of more people by forcing newsrooms to produce and distribute content to many different platforms in many different apps. It is easy to argue that the audience for news is now larger than ever before (Conaghan, 2014). But the problem is that this audience growth has not yet translated into larger revenues for news organizations. As we shall see, the old formula of providing audiences to advertisers is becoming less and less lucrative as advertising methods change and competition increases, so while Conaghan equates attracting people with attracting advertising revenue, that equation is becoming less true. Thus while mobile certainly presents new distribution opportunities and gives news more exposure than ever, news companies have not yet been able to capitalize on this exposure to replace revenue lost from traditional media products.

MOBILE NEWS ECONOMICS

There is no question that news audiences are flocking to mobile platforms such as smartphones and tablet computers. In the U.S., 64% of adults own a smartphone (Smith, 2015) and 42% own a tablet (Zickuhr & Rainie, 2014). News organizations report receiving around half of their online traffic from these mobile devices as opposed to desktop or laptop computers (Kirkland, 2014). From the consumer's perspective, surveys report that news is a frequent use of mobile devices (Mitchell, Rosenstiel, Santhanam, & Christian, 2012; Smith, 2015). Other studies suggest that mobile devices, always in hand or pocket, increase the amount of time available for news consumption by squeezing media into previously unoccupied spaces (Dimmick, Feaster, & Hoplamazian, 2010). Mobile growth shows no signs of abating, with advertisers and industry observers projecting rapid growth in the coming years (Reynolds, 2014). Given these developments, there can be no doubt that mobile will play a central role in news' future, likely overtaking the Web (Conaghan, 2014).

The question, then, is what that future will look like and who will have part in it. One thing is for certain: U.S. newspapers are already way behind the game. Most news companies have an app, but most of them are free and less than a quarter of them make money (Alliance for Audited Media, 2012). Only two U.S. newspapers have managed to attract more than 50,000 mobile subscribers (Pew Research Center, 2014c). The cost to reach 1,000 readers (CPM) on a mobile device is less than half of what it costs on computers, which was already a tenth of print rates (Ovide & Bensinger, 2012; Sasseen, Olmstead, & Mitchell, 2013). This has led observers to call projections of huge advertising potential on mobile platforms a "mirage." "If the industry hasn't cracked the mobile advertising code after five years of energetic and skillful work, it's because there is no code to crack" (Filloux & Gassee, 2012).

And while there is money to be made on mobile devices, the money is split among more competitors — device makers, internet service providers, app makers and distributors all can claim portions of mobile revenue. In 2013, mobile ad revenue doubled compared to a year earlier (Internet Advertising Bureau, 2013) and was projected to soon overtake print advertising (Reynolds, 2014). But not much of this revenue is going to news companies. In fact, nearly three quarters of mobile display advertising spending goes to six companies — Pandora, Google, Twitter, Millennial Media (an ad agency), Apple iAds, and Facebook — none of which are news companies (Holcomb & Mitchell, 2014).

Revenue streams from circulation also have yet to live up to news companies' hopes. In 2011, newspapers began a large-scale push to monetize Web news by experimenting with various subscription strategies and paywalls. The New York Times installed a paywall that year (Sulzberger, 2011), and others quickly followed suit (Beaujon, 2012; Mufson, 2012). Larger, more prominent newspapers such as the Times and the Wall Street Journal have had success, with digital-only subscribers now accounting for roughly a third of all subscribers (Mutter, 2013). But these papers are more likely special cases rather than bellwethers for the industry (C. W. Anderson et al., 2012). By the end of 2013, more than 500 newspapers were charging users for access to online news (Holcomb & Mitchell, 2014), but not all saw success. At Gannett, the nation's largest newspaper chain, digital-only subscribers number less than 3% of the chain's average weekday circulation in print. The San Francisco Chronicle and the Dallas Morning News both canceled their short-lived paywall experiments (Beaujon, 2013; Jean, 2014). Even though circulation revenue actually rose in 2013, it had more to do with higher print subscription rates than with the success of digital subscriptions (Holcomb & Mitchell, 2014). As a point of comparison, the streaming video service Netflix has

roughly 40 times as many digital subscribers as does The New York Times, and the Times' global penetration among all Internet subscribers is .03% (Mutter, 2013). In summary, mobile readership is up and digital subscriptions are making money, but they have not yet replaced losses in traditional media.

One explanation for this failure is that these revenue strategies, developed and perfected in print, are simply not suitable for application on mobile devices. This may be true to an extent, but if a problem exists in this area it is likely to be one of implementation considering that other companies are able to secure large amounts of display advertising on mobile devices. Another explanation could be that other types of content (such as video, music and games) are more attractive to users, thus achieving larger audiences and more advertising. But studies continue to suggest that news is a main use of smartphones, so it ought to be at least competitive with other types of content. Perhaps another explanation is that newspapers are again too late to the game, but newspapers' mobile strategies were put in place much more quickly than their online strategies, and yet both are seeing the same dismal results.

A fourth explanation may be the most likely. Newspapers have focused on their core product and treated mobile as an afterthought. For the most part, the content on mobile devices is the same text as in print and online, repackaged for another platform. This may create efficiencies within an organization with diverse news offerings, but it takes emphasis away from mobile. News production routines are still largely tied to the print product. Very few newspapers have a mobile-only team, and where they do exist these teams are not the center of the organization's focus. Thus, newspapers have not been willing to overhaul themselves to focus on delivering a high-quality, unique mobile product. Their strategy has been to leverage existing production for the print product to put out additional digital products without adding much overhead. This may work well

enough to provide some additional income to the print side, but it does little to prepare newspapers for the mobile future.

In its 2014 State of the Media report, Pew Research Center saw promise in a new wave of "digital native" news organizations. If anyone has been able to take advantage of the mobile migration, it has been digitally native companies such as Facebook, Apple, and Google. News companies have yet to achieve that level of success, but if any of them can, digital native news companies will be best positioned to do so by having a mobile focus and a right-sized staff to fit the smaller advertising and subscription revenues from digital products.

CHALLENGES GOING FORWARD

News companies in the U.S. still face substantial challenges in producing, distributing and monetizing mobile news (Westlund, 2013). The solutions to these challenges may be more likely to come from mobile-focused startups rather than established mainstream media companies. As has been the case with Web journalism, innovative mobile business models (using the term to include revenue, content and staffing strategies) will likely come from outsiders and online natives. Web-focused news organizations such as Huffington Post and BuzzFeed have found success by working in ways that mainstream media do not (and likely, never could). On mobile, Flipboard has found success by working in ways that mainstream media do not (and can't, yet). The difficulty is that nothing but a newspaper has been shown to consistently support the kind of sustained original reporting upon which most of the U.S. news flow depends. Thus, if newspapers want to stay relevant in the future of news, they must develop mobile business models, which will require changes to revenue, content and staffing strategies.

A second major challenge for news organizations is competing in an environment where choices are abundant and attention is scarce. Mobile has expanded the news audience, but it has also given them more opportunities for distraction. It is up to news organizations to make a case for their relevance, whether through content differentiation, branding initiatives or specialized news services that consumers can't get elsewhere.

A final challenge will be to keep up with media technologies. Career journalists have seen myriad new skills added to the list of qualifications for a journalism job: photo, video, editing, data, and now even programming. Tech-focused companies such as Google, Apple and Facebook dominate the mobile market for a reason: they're best positioned to take advantage of the technology. Journalists are not inherently technologists. Just as competent press workers and paper boys were essential to newspapers' early success, those with programming, design and data skills will play an essential role in mobile journalism. This is not to say that there is no room for reporters and writers, but they must be familiar with and be able to work with programmers and software developers in order to communicate their messages on mobile. These technology-focused employees must also come with a sense of news judgment and perhaps even the same zeal for public information that drives journalists in order to succeed in the newsroom culture and in organizing information for a mobile public.

Consuming mobile news

Mobile changes news consumption habits in two key ways. First, for most U.S. consumers, consuming news via traditional media, and even digital media online, is an act tied to a particular place. The television sits in the living room, the radio is used mostly in the car, and the computer is used at a desk or, potentially, where wi-fi is available. Newspapers and magazine are portable, but the content is updated daily, at

most. Mobile devices and the cellular internet connections they use make a wide array of up-to-the-minute news content available anywhere a cellular signal is available, which these days is nearly everywhere.

As a result, research suggests that people are squeezing media into previously unoccupied spaces in their day (Dimmick et al., 2010; Lai, 2014). Standing in line, waiting for a freezer meal to heat in the microwave, those silent moments before a meeting begins — all are now times when people use their smartphones, often to check the news. Previously, researchers interested in media consumption patterns studied a constancy hypothesis (M. E. McCombs & Eyal, 1980; Wood, 1986), which is that people have a fixed amount of resources they can dedicate to media consumption. If a new medium becomes available, its audience will be made up of defectors from other media. That is, the pie does not grow to accommodate the newcomer, it is simply re-sliced. There is evidence that the constancy hypothesis is less supported as more and more technologies enter the market, however (Son & McCombs, 1993). Mobile may have displaced other media to some extent, providing a more convenient way than a bulky newspaper to read the news on a crowded commuter train. But in other ways, mobile has created new opportunities for consuming news where none existed before, effectively expanding the pie.

To the extent that this happens, mobile may be responsible for a significant change in consumer behavior. Sure, anyone could have brought a newspaper or a portable radio to the doctor's office, but most did not. A smartphone, on the other hand, fits in your pocket and is always with you, so people readily pull it out and flip it on (referencing again Ruston's (2012) conception of ubiquity). In general, and not just for news content, because smartphones are always available and can move with you in time and space, they are used frequently in short bursts to fill empty time (Dholakia, Reyes, &

Bonoff, 2014). Dholakia and colleagues see a shift from “legato” to “staccato” media consumption on mobile devices, characterized by intermittent, burst-like and dispersed consumption moments. It is therefore likely that mobile news use is characterized by shorter sessions compared with other media.

Mobile use is also characterized by an increase in frequency of use. Mobile devices provide alerts that, depending on user settings, frequently call attention to the device. These might come from email, text messages, social media, games, or news apps. All told, mobile devices have encouraged users to form “checking habits,” defined as brief, repetitive inspection of dynamic content on the device (Oulasvirta et al., 2012). These checking habits are reinforced by alerts and sometimes even rewards for checking in. Eventually, people begin checking in automatically, without paying attention or having a conscious information seeking goal (Bayer & Campbell, 2012). This may drive further incidental use (“Since I already have my phone out, might as well check this other app also”) and lead to distraction. In summary, mobile use is characterized by frequent, brief checkups to see what is new.

CHECKING THE NEWS

Mobile changes when people can read the news, but it also changes how people read the news. The traditional model of citizenship holds that citizens ought to be informed in order to make decisions. But rather than poring over every policy detail or every development of the campaign, audiences often simply surveil their environments, looking for threats or entertainment, among other things (Schudson, 1998; Zaller, 2003). Decades ago, this surveillance could be conducted daily at best, when editions of the paper and nightly broadcast packages were produced. The internet and 24-hour news programming on television made up-to-the-minute news widely available, but only if you

were willing to stay in one spot all day watching for it. RSS feeds and Email alerts expanded on this ability, pushing notifications to people when an event of interest occurred, but these could be accessed only from a (usually stationary) computer. Now, not just these alerts but the full range of news content available, including video, can be accessed anytime, anywhere on a mobile device. With a mobile device one may conduct surveillance casually throughout the day, squeezing news checkups into and around other activities. This leads people to consume news in short bursts multiple times throughout the day, essentially checking headlines for anything new or noteworthy, viewing one or two items, and then moving on. A survey by the American Press Institute finds this to be especially true for younger people, who are also frequently mobile users. “This generation tends not to consume news in discrete sessions or by going directly to news providers. Instead, news and information are woven into an often continuous but mindful way that Millennials connect to the world generally” (American Press Institute, 2015). But even for the broader population, the most common response people gave when asked when they get news was “all throughout the day” (American Press Institute, 2014). Other research studies have found “news grazing” to be common among television viewers (S. E. Bennett et al., 2008; Morris & Forgette, 2007) and have observed news snacking among users of the internet and mobile phones (Costera Meijer, 2007; Gutknecht & Dörflinger, 2009).

This is significant considering what is known about how people learn from the news. The first significant change is an increase in the scanning and browsing behavior introduced in the previous chapter. Assume one person consumes news in one long session daily, while another consumes news in several shorter sessions. Even if both people spend about the same total amount of time with the news, are their news experiences equivalent in terms of learning? Logic suggests not. Shorter, staccato

sessions when news is consumed in the interstices of one's day are expected to produce different kinds of learning than concentrated, lengthy news sessions. The question is generally one of breadth versus depth (See Figure 1). At the start of every news session, people must first spend some time deciding what to read and some time actually reading it (D'haenens et al., 2004; Eveland, Jr. & Dunwoody, 2002). Both short and long sessions would begin in this way, and so what is lost in shorter sessions is reading time. In a shorter session, it simply is not possible to read several full news stories. Instead, knowing that she has only a short amount of time in which to get a news update, a reader might read just headlines or the first few paragraphs of each story. When choosing which stories to read, a reader in a shorter session might seek out the most popular stories, stopping only to read the highlights of the news. Longer sessions would allow a more methodical journey through a wider variety of content. When choosing news sources (which outlets to get news from), a reader in a shorter session might scan the home pages of several news sites, to see if anything is new. A reader with more time to spend might go deeper into their favorite news sources. Session length, then, is expected to have a direct effect on what news content readers choose to consume and their level of engagement with the news. These sessions are not often cumulative because scanning the news involves looking for what is new, not picking up where one left off.

Figure 4.1. News session length's effect on consumption patterns. Shorter sessions lead to consumption patterns different from those in longer sessions.

	Within a story	**Across stories**	**Across subjects**	**Across sources**
Shorter sessions	Read lead and top of story	Scan many headlines, read few stories	Top headlines, most popular	Many sources, less time with each
↓	↓	↓	↓	↓
Longer sessions	Read full story	Methodically read many stories	Includes non-mainstream stories	More time with chosen sources

GUIDANCE ON MOBILE

A second way in which consuming news on mobile is different is that editorial decisions are different on mobile than they are in other media. Knowing that mobile users check in multiple times per day, many news organizations have prioritized recent information and immediacy above all else. In other words, if a person is checking in multiple times per day, news organizations might prioritize immediacy and structure content offerings to give visitors something new to see each time they stop in. This is in contrast to the model typical of a newspaper of television broadcast, for example, where the most important stories are placed where they may be viewed first. Some mobile apps prioritize stories this way, but the many others focus on the most recent content, even posting timestamps to indicate how fresh each story is. What effect might this approach have on learning?

The question is answered by first considering that much of the value in news is in learning things you didn't know you didn't know. On television, it is easy for viewers to see that the lead story is the most important among the events of the last 24 hours. Front-

page newspaper stories convey the same sense of importance. But how can news organizations communicate that importance on a mobile device that is checked several times a day? Is the latest story the most important? Giving an important story more prominence can make it more salient to readers (Lim, 2010), but with limited screen real estate, a blown-up presentation is unlikely on mobile, even for the most important stories. In order to squeeze even five headlines on a screen, all typically have the same "weight," meaning size and relative priority. That might be fine if readers could be trusted to choose the most important stories and read them, but people have highly selective media tastes and either ignore or miss important stories unless they are given significant guidance (Butt & Phillips, 2008; Eveland, Jr. & Dunwoody, 2001; Milheim & Martin, 1991; Prior, 2005). As a result, news consumers are more likely to miss important stories on mobile, which could have negative effects on learning and democratic participation.

This deficit is partially made up through social media; one's network of friends can act as partners in surveillance, alerting you when you've missed something important in your own scanning. Additionally, computer algorithms that recommend news stories now allow people to offload some of this scanning work, and research suggests that those who use them benefit from broad exposure to news (Beam, 2013). The problem is that not many people use them, and those who do don't take the time to personalize them (Kormelink & Meijer, 2014). Users interviewed by Kormelink and Meijer reported that they generally use news sites and apps as they are because they like to see what news editors pick to be the most important stories. While it would be easy to scan for relevant news items during a shorter session, it's not likely one could actually read many of them, limiting the amount of learning that can occur in a single session.

All in all, Westlund (2014) proposes that people's mobile news consumption has been woven into the very rhythms of their lives. Especially for younger populations in the

United States, mobile communication is an integral part of life (Smith, 2015). It is therefore important to learn how mobile news use affects learning from the news and civic engagement, which is the purpose of this study. The following chapter lays out a series of research questions and hypotheses to investigate these relationships.

CHAPTER 5: RESEARCH QUESTIONS AND HYPOTHESES

Previous chapters have shown that, while much research has been conducted on the relationship between news engagement and civic engagement, this relationship is subject to change and challenges in a mobile landscape. As society changes and people's habits, preferences and interests evolve accordingly, it is important to re-evaluate what we think we know. This chapter describes the research questions that will be answered and the hypotheses that will be tested in two studies that will provide a framework for understanding the mobile news consumer and civic engagement in a mobile landscape.

Study 1

MOBILE NEWS USERS

Research suggests that younger adults and those with higher incomes and education are more likely to have and use mobile devices (Duggan & Smith, 2013; Smith, 2015). In a recent survey of U.S. adults, a slightly higher percentage of males owned smartphones compared with females, and Hispanics and blacks owned smartphones in higher percentages than whites, though it is not clear whether these differences were significant (Smith, 2015). For this reason and because mobile device adoption is proceeding rapidly (Farago, 2012), it is important to establish a demographic profile of mobile device users. Because this study examines news consumption generally and compares mobile news consumers with other news consumers, it is also important to examine any differences between mobile device users and those without mobile devices. As stated above, there are likely to be differences related to age, income and education. As with all research questions and hypotheses in this study, these questions are being asked about adults in the United States, where the survey data was collected.

RQ1: What are the demographics of mobile device users in the United States and how do mobile device users compare with non-users?

The second major category of people at the center of this study is news users. Studies suggest that older adults and those with higher educations and incomes are more likely to follow news (Eveland, Jr. & Scheufele, 2000; Poindexter & McCombs, 2001). Other surveys suggest that people may now get news from a broad array of sources and that news consumption behaviors are changing among platforms (Mitchell et al., 2014; Pew Research Center, 2014c). Most notably, digital news is on pace to become the most popular way to consume news, surpassing television, which has been dominant for decades. In this changing landscape, it is important to know who gets news and where they get it, and so the following questions are posed.

RQ2: What is the demographic profile of news users and how do news users compare to non-users?

RQ3: On which platforms do people get news?

The combination of mobile device use and news use is the focus of this study. Thus it is necessary to examine the characteristics of mobile news users and compare them to those who own mobile devices but do not use them for news, those who do not own mobile devices but get news on other platforms, and those who do not get news on any platform. While it is likely that those who use their mobile devices for news also get news from other sources, there may be a category of news consumers who get news exclusively or primarily from a mobile device. These news users are called “mobile dependent” because mobile accounts for an outsized share of their news consumption. Because the variables of income and education predict both mobile device ownership and news use in similar ways, these variables are expected to overlap in predicting mobile news use. Younger people are more likely to own mobile devices, but less likely to read

news; the opposite appears to be true for older adults. These differential effects of age on mobile device ownership and news use must be investigated. The effects of race and ethnicity on mobile news use are also unknown. These lines of inquiry can be summed up in the following research question.

RQ4: What are the demographic characteristics of mobile news users, and how do they compare to mobile news non-users?

Finally, there is reason to believe that levels of news knowledge and civic engagement are in flux among different demographic groups. Gender, for instance, is no longer a significant predictor of civic engagement (Zukin et al., 2006). Research during the early days of the Internet found that digital technology did not democratize information (Norris, 2001), but the rapid diffusion of mobile devices and broader internet penetration may have changed that. Thus it is important to investigate which demographic characteristics are associated with news knowledge and civic engagement in the mobile news landscape. Therefore, the following two questions will be answered.

RQ5: What demographic characteristics are associated with news knowledge?

RQ6: What demographic characteristics are associated with civic engagement?

MOBILE NEWS CONSUMPTION

As explained in previous chapters, literature, observation and logic suggest that the mobile news consumption experience is likely to be characterized by brevity, frequency, distraction, and low attention (Bayer & Campbell, 2012; Dholakia et al., 2014; Dimmick et al., 2010). These studies suggest that people squeeze mobile news sessions into otherwise unoccupied gaps in their day. In general, and not just for news content, because smartphones are always available and can move with you in time and space, they are used frequently in short bursts to fill empty time (Dholakia et al., 2014). Media

consumption on mobile devices happens most often in intermittent, burst-like and dispersed consumption moments. People's interactions with their mobile devices are often driven by alerts and notifications that incentivize brief check-ins. These observations lead to this study's first hypothesis.

H1: Mobile news sessions will be shorter than news sessions on other platforms.

It is likely that mobile news users consume news in short bursts multiple times throughout the day, checking in to see if there is anything new or noteworthy. As mentioned in Chapter 3, a survey by the American Press Institute finds this to be especially true for younger people, who are also frequently mobile users. "This generation tends not to consume news in discrete sessions or by going directly to news providers. Instead, news and information are woven into an often continuous but mindful way that Millennials connect to the world generally" (American Press Institute, 2015). But even for the broader population, the most common response people gave when asked when they get news was "all throughout the day" (American Press Institute, 2014). Because people's mobile devices are always with them, it is likely that they will access them (and access news) multiple times per day. This relationship is tested using the following hypothesis.

H2: Mobile news will be accessed more times per day than news on other platforms.

THE MOBILE NEWS DEPENDENCY MODEL

This section presents the Mobile News Dependency Model, which explains the effect of mobile news use on civic engagement through news session length and news knowledge. Despite its name, the Mobile News Dependency Model does not draw upon media dependency theory (Ball-Rokeach & DeFleur, 1976), which advocates for placing

media and audiences in a larger social context for determining when effects occur. "Mobile dependency" as it is used here refers to the share of a person's overall news consumption taken up by mobile devices. That is, it is an effort to quantify to what extent a person depends upon their mobile device for getting news and therefore captures a range of experiences (not just "dependent" or not). Before specifying the Mobile News Dependency Model, however, it is important to gauge the simple, direct effect of news consumption on news knowledge. Many previous studies have found that informational use of media (regardless of the platform) is associated with higher levels of civic engagement (Neuman et al., 2011; Ostman, 2012; Shah, 2005) and this also appears to be true for mobile devices (S. W. Campbell & Kwak, 2010a, 2011b; Kwak, Campbell, Choi, & Bae, 2011). The source for the information that constitutes news knowledge is the news media, so the following hypothesis is logical.

H3: Overall news use is positively related to news knowledge.

This may or may not be true in the case of mobile devices. Theory suggests that mobile news consumption is not equivalent to news consumption on other platforms. As explained in previous chapters, mobile news users are likely to be distracted and to pay less attention when checking news on a mobile device, which should lead to lower levels of learning from the news. Additionally, having shorter session lengths (as in H1) is likely to result in lower learning. This is because some time in each session is dedicated to determining what to consume, while remaining time is devoted to actually consuming the content. This selective scanning is related to lower levels of learning (D'haenens et al., 2004; Eveland, Jr. & Dunwoody, 2002). Finally, many mobile news apps prioritize immediacy over importance and impact, minimizing the amount of editorial guidance that can indicate a news item's salience. Together, these three factors (distractedness, shorter sessions, and lack of editorial guidance) are likely to result in lower news knowledge.

It is possible that additional media use might make up for these deficits. In other words, a person who uses other news media in connection with mobile news consumption may be able to overcome any information deficits experienced on the mobile device. Other media (notably newspapers and television broadcasts) encourage longer sessions and have a structure that supports more editorial guidance. They are also not so affected by the distracted, low-attention usage patterns prevalent on mobile devices. Considering these factors, this study proposes that those who are dependent on their mobile devices for news are likely to have lower news knowledge. That is, imagine that a person's news usage might be mapped along a continuum of mobile news dependency. The purpose of this continuum is to compare a person's mobile news use with their use of news on other platforms, so non-news users are not placed on the spectrum. On one end of the mobile news dependency continuum are people who do not get news from mobile devices, whatever their other mix of news. On the other end are people who get news exclusively via a mobile device. In between are people for whom mobile makes up some percentage of their overall news consumption. News knowledge is expected to decrease as mobile devices account for a larger share of news consumption.

It is theorized that news session length plays a key role in determining the relationship between mobile news dependency and news knowledge. This is based on the evidence that news consumption sessions are not cumulative — rather than placing a bookmark and picking up where they left off, mobile news consumers are looking for what is new, seeing if anything has changed or been updated. Many news companies cater to and even encourage this behavior by including timestamps on their mobile stories and publishing them in reverse chronological order, with the most recent information visible first. Imagine two news consumers, one who is dependent on mobile and one who is dependent on television. The mobile dependent user, research suggests, is likely to

consume news in multiple short bursts. As an example, a mobile dependent news consumer might get news 12 times a day on their phone, with these sessions averaging 5 minutes each. The television-dependent user watches only the national and local news broadcasts every night, a total of 60 minutes of news programming. Each user has consumed roughly an hour of news content, but are their experiences equivalent in terms of learning from news?

Research suggests not, given the role of session length in news learning. Recall that in every news session, a person must first spend some time scanning and browsing what is offered, and then spend some time actually reading. This is a zero-sum game, especially when given a fixed amount of time to get news. A person must spend some time deciding what to read (whether based on interest, relevance, or other factors) before they select an item to read. This scanning and browsing behavior occurs at the beginning of each learning process as the brain decides what is relevant and what must be processed for further storage. Thus, the first few moments (or more, depending on the number of content offerings and the level of editorial guidance, both of which affect how much decision making the user must do himself) of each session are spent choosing which content to consume. The remainder of the time is spent consuming it. Thus when news sessions are longer, learning is expected to increase, which leads to the following hypothesis.

H4a: Mobile news dependency is negatively associated with average session length

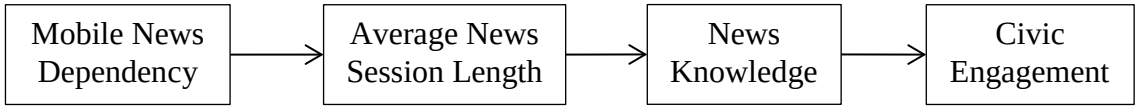
H4b: Average session length is positively associated with news knowledge.

The relationship between news knowledge and civic engagement has been well established (Galston, 2001; Verba et al., 1995; Zukin et al., 2006). Knowledge is a critical resource that citizens draw upon when choosing whether and how to participate in their

democracies. There is no evidence that this link has changed in the mobile landscape, and so the relationship between knowledge and civic engagement is presented here as a replication of previous work. Together with H4a and b, this explains the relationship between mobile-dependent news use and civic engagement (see Figure 4.1). It is expected that mobile news dependency does not have a direct relationship to civic engagement; rather, this relationship is fully mediated by session length and news knowledge. In other words, mobile news dependency affects civic engagement only by affecting session length and news knowledge. It is expected that mobile dependent news users will have lower average session lengths; these lower session lengths will in turn lead them to have lower news knowledge; having fewer knowledge resources will lead to lower levels of civic engagement. The final hypothesis in this study tests the Mobile News Dependency Model, as follows.

H5: Mobile news dependency will be negatively related to civic engagement, mediated by average news session length and news knowledge.

Figure 5.1. The Mobile News Dependency Model, showing relationships between mobile news use, news session length, news knowledge and civic engagement.



The model as presented here draws on the literature and theory presented earlier in forming a simple causal chain demonstrating how information is acquired, processed and used as a resource for civic engagement. It is possible that these variables might interact in other ways — for instance, average news session length (essentially, a measure of news consumption) might be related directly to civic engagement. But theory suggests that the reason news consumption aids civic engagement is that it increases knowledge of

public affairs, knowledge that is an important if not sufficient condition for participation in public life. Thus the Mobile News Dependency Model captures the most likely path from mobile news information to civic engagement, given the literature and theory available to this point. They suggest that mobile news use is characterized by frequent, short bursts, which literature suggests should be detrimental for learning from the news. How much a person learns from the news should be a predictor of their level of civic engagement, thus completing the model.

Study 2

Study 2 makes use of additional data collected approximately one year after Study 1 was completed, so as a first step it is appropriate to examine baseline relationships between demographic variables and the variables of interest. Additionally, the new variable of news snacking must be examined to understand the demographic profile of news snackers.

RQ7: What demographic characteristics are associated with mobile news use?

RQ8: What demographic characteristics are associated with news snacking?

RQ9: What demographic characteristics are associated with news knowledge?

RQ10: What demographic characteristics are associated with civic engagement?

Study 2 used slightly different measures to test differences in mobile news usage patterns. Study 1 hypothesized that mobile news sessions would be shorter on average than news sessions on other platforms, and that mobile news would be accessed more times per day than on other platforms. This is based on the theoretical expectation that mobile news usage patterns are characterized by short, burst-like check-ins spread throughout the day. Study 2 asked about session length in an open-ended question, and thus H1 can be replicated using data from Study 2.

H6: Mobile news sessions will be shorter than news sessions on other platforms.

Study 2 also asked specifically whether news usage on each platform was focused in a single session or spread throughout the day. It is hypothesized that mobile news use is more likely to be spread throughout the day.

H7: Mobile news consumption is more likely to be spread throughout the day than news consumption on other platforms.

Study 2 sought to create a new variable for news snacking, building on previous research (Bucy et al., 2014; Hardy & Jamieson, 2011; Morris & Forgette, 2007). These studies found news snacking behavior among television viewers, but did not compare the level of snacking behavior across platforms. Study 2 asked respondents which platform they used the most for news so that respondents can be categorized according to their most-used news platform. Thus in addition to identifying habitual snackers, or those to get news in small bits and pieces, we can connect the snacking behavior to the platforms that enable it. Following the theoretical expectations outlined above, it is expected that mobile news consumption will be characterized by snacking rather than full-meal consumption.

H8: Those who get most of their news from a smartphone will score higher on an index of snacking than those who get most of their news on other platforms.

In other words, news consumers who primarily get news from mobile devices are expected to be snacking on the news. Snacking on the news has been shown to have detrimental effects on knowledge and civic engagement (Hardy & Jamieson, 2011; Morris & Forgette, 2007), and this study seeks to replicate that finding in a mobile news landscape.

H9: News snacking is negatively related to news knowledge

H10: News snacking is negatively related to civic engagement.

It is unclear whether there will be any paths from smartphone use to news knowledge and civic engagement. Earlier hypotheses predict that mobile-primary news users are likely to be snackers, and that snacking is likely to lead to lower knowledge and engagement, but it is not clear whether these three will fit together in a causal chain. There is some evidence that mobile phone use in general allows people to connect with one another and communicate more efficiently, thereby facilitating engagement (S. W. Campbell & Kwak, 2010a, 2011a, 2011b). These studies did not include news knowledge, however, and did not attempt to account for differential patterns of news consumption on these devices. Therefore this study proposes a final hypothesis about the relationship between smartphone news use, news snacking, and news knowledge and civic engagement.

H11: Mobile news use will be positively related with news snacking, which will be negatively related with news knowledge and civic engagement.

Conclusion

These research questions and hypotheses represent a new perspective of the effects of mobile devices centered on users' usage patterns and consumption habits. The fact that, for most people, mobile devices are a way to frequently check in on news, rather than consume it in depth, is likely to have detrimental effects on news knowledge and civic engagement. To the extent that users are able to extend their news sessions, or combine shorter mobile sessions with longer ones on other news platforms, they may be able to learn more and be better prepared to participate in a democracy.

Altogether, this study poses 10 research questions and 11 hypotheses in order to better understand civic engagement in a mobile news landscape. These questions are answered and hypotheses tested using results from two online surveys of U.S. adults. The

following chapter details the methodology for both studies and how measures were constructed and will be analyzed.

CHAPTER 6: METHODOLOGY

To answer the research questions and test the hypotheses posed in the preceding chapter, two studies were conducted, both involving online surveys of U.S. adults. Online surveys were chosen because it was the most cost-effective way to collect data from a large sample of U.S. adults that closely resemble the general public. Conducting surveys of the general public is always difficult given the fact that there is no comprehensive list of American adults from which to draw a sample (Dillman, 2011). Telephone directories, driver license records, voter registration records, residential addresses — all have coverage error and cannot be considered to represent the general public. As a result, a researcher wanting to survey the general public must be willing to accept some amount of error, either in coverage or in sampling. In general, random-digit dialing telephone surveys have been preferred when wishing to survey the general public because it is possible to create a probability sample. That is, there is a theoretical list from which participants can be drawn (even if it doesn't include every single U.S. adult) and each number on that list has a known, non-zero chance of being selected. But coverage error from this method is increasing. The percentage of U.S. households with a landline telephone has dropped from about 95% in 2002 to only 59% in 2013 (Luckerson, 2014; MarketingCharts, 2007). Furthermore, speaking with a person on the phone may elicit socially desirable answers (measurement error) compared with a self-administered survey by mail or online. In contrast, at least 70% of U.S. households have a computer with broadband internet access (Rainie & Cohn, 2014). Because this study employed an online survey, measures were taken to ensure that the pool of respondents resembled the general U.S. population as closely as possible.

Study 1 used a managed panel in order to select a pool of respondents that most closely matches the demographics of U.S. adults. This method is meant to ensure that the group of respondents matches the overall population on the variables selected, but it does not ensure that respondents match population distributions for other variables of interest. However, when samples are matched on key demographics, the managed panel sample will converge with a true random sample under most circumstances as sample size increases (Rivers, 2005). Study 1 was approved by the University of Texas at Austin's Institutional Review Board (IRB) and was conducted during July 2014. Dr. Paula Poindexter, who funded the survey, invited the researcher to add questions to the survey. The researcher developed questions based on the preceding literature specifically to answer the research questions and test the hypotheses proposed in this study. Dr. Poindexter commissioned the Office of Survey Research (OSR) at the University of Texas at Austin to handle the fieldwork. OSR is a member of both the Association of Academic Survey Research Organizations (AASRO) and the American Association for Public Opinion Research (AAPOR). OSR has provided survey research expertise to both internal and external clients since 1986. At the time of the survey, OSR was part of the Annette Strauss Institute for Civic Life, but has since been reorganized.

The survey questionnaire for Study 1, which took 10 to 15 minutes to answer, was completed by 1,505 respondents. The actively managed panel of online respondents was acquired through Survey Sampling International, an internationally respected survey sampling firm. Because the panel sample was a non-probability sample, it was requested that the sample match the demographics of the American population according to the U.S. Census Bureau. For information on evaluating non-probability online panels, see Callegaro & Disogra (2008) and AAPOR's Standard Definitions (2011, p. 38). A copy of

the questionnaire with the exact wordings and presentations for questions used in the survey is included in Appendix 1.

Study 2 used an opt-in panel of paid respondents recruited through Amazon's Mechanical Turk service. Anyone can register to become an MTurk worker after preapproval by Amazon. However, researchers who post surveys there can set up qualifications for the type of worker they would like to complete the survey. Workers on MTurk are generally younger, overeducated, underemployed, less religious, and more liberal than the U.S. population at large. Considering race, Asian-Americans are overrepresented while blacks are underrepresented (Paolacci & Chandler, 2014). While the quality of the data obtained via MTurk is generally high and at least as reliable as other survey methods (Buhrmester, Kwang, & Gosling, 2011), it most closely approximates traditional convenience samples and therefore should not be considered representative of the general population (Berinsky, Huber, & Lenz, 2012; Paolacci & Chandler, 2014). Studies suggest that MTurk workers are more attentive to survey instructions than subjects taking studies in person (Hauser & Schwarz, 2015), but that including attention check questions can improve data quality from some respondents (Peer, Vosgerau, & Acquisti, 2014).

For this study, the qualifications will include that participants must be U.S. residents who are at least 18 years old and have a high MTurk approval rating (percent of previous tasks accomplished that were considered acceptable by other researchers). This qualification helps reduce the risk of fraudulent participants. The MTurk job listing also provided a brief description of the study and the amount of compensation ($.75 for the 10-15 minute survey). The subjects' participation was completely voluntary. Study 2 was approved by the IRB at the University of Texas at Austin and was conducted in June 2015. The survey was completed by 1,212 respondents, 46 of which failed an attention

check question. These results were excluded because, upon failing an attention check question, the survey was terminated to prevent spam results. After excluding those who failed attention check questions, the final sample included 1,166 responses. A copy of the questionnaire with the exact wordings and presentations for questions used in the survey is included in Appendix 2.

Measures: Study 1

DEMOGRAPHICS AND MOBILE OWNERSHIP

All the research questions in this study ask how demographic variables relate to key variables of interest in this study, and so a standard set of demographic questions was presented. Respondents were asked in what year they were born and whether they are male or female. They were asked the highest level of education they have completed, with choices ranging from "Some high school or less" to "Masters, M.D. or doctorate." They were asked to select their race or ethnic group from a list including Caucasian or white, African American or black, Hispanic or Latino, Asian American, Native American, or other. They were also asked separately whether they are of Hispanic or Latino origin, similar to how the U.S. census is conducted, since many of these people identify as white but of Hispanic origin. Finally, they were asked their approximate household income, with possible response categories ranging from "under $20,000" to "$100,000 or more" in $10,000 increments.

RQ1 asks, "What are the demographics of mobile device users in the United States and how do mobile device users compare with non-users?" To determine whether respondents own a mobile device, they were asked which if any of the following mobile devices they own: a smartphone such as an iPhone or Samsung Galaxy; a tablet computer

such as an iPad; a cellphone (excluding iPhone, Samsung or other Android smartphone); or an e-reader. Respondents answering that they own a smartphone or a tablet (the devices described in the first two categories) were identified as mobile device owners. This is in keeping with this study's definition of mobile devices as smartphones and tablets that have wireless data connections and that use mobile operating systems capable of running apps.

NEWS CONSUMPTION AND SESSION LENGTH

RQ2 asks, "What is the demographic profile of news users and how do news users compare to non-users?" RQ3 asks, "On which platforms do people get news?" To measure news consumption, respondents were asked a battery of questions to determine how often they get news on various platforms. Respondents were asked how often they get news "in print," "online on a desktop or laptop computer," "on television," "on radio," and "on a smartphone or tablet." Respondents were asked how many *days per week* on average they get news on these platforms, with responses ranging from 0 days per week to 7 days per week. Respondents were then asked how many *times per day* on average they get news on these platforms, with responses being open ended. These two measures produce a weekly frequency of news consumption and a daily frequency of news consumption (the number of sessions per day) across five different media. With this information, it is also possible to answer RQ4 ("What are the demographic profiles of (a) mobile news users, (b) mobile dependent news users, and (c) mobile news non-users? How do these user groups compare?") and test H2 ("Mobile news will be accessed more times per day than news on other platforms.").

A third key news consumption variable was news session length, which is the dependent variable in H1 and in H4a. It is an independent variable in H4b and an

intervening variable in H5. H1 predicts, “Mobile news sessions will be shorter than news sessions on other platforms.” H4a and b predict “Mobile news dependency is negatively associated with average session length,” and “Average session length is positively associated with news knowledge.” H5 predicts, “Mobile news dependency will be negatively related to civic engagement, mediated by average news session length and news knowledge.” To measure news session length, respondents were presented with a matrix question asking them to indicate the length of their most recent news session on the five platforms. They were asked, “Think of the last time you used each of the following media for news. About how long did you spend getting news that time?” Possible responses were on an eight-point scale ranging from “you don’t use this medium” and “10 minutes or less” to “more than an hour” in 10-minute increments.

MOBILE NEWS DEPENDENCY

H4a and b (“Mobile news dependency is negatively associated with average session length,” and “Average session length is positively associated with news knowledge”) and H5 (“Mobile news dependency will be negatively related to civic engagement, mediated by average news session length and news knowledge.”) both use mobile news dependency as the independent variable. Therefore it was necessary to construct a single continuous variable that measures mobile news dependency. This was done by calculating the ratio of a respondent’s mobile news consumption to their overall news consumption. Because there are weekly, daily and session-level variations in news consumption, all three news consumption variables presented under this heading were used to arrive at an overall picture of each respondent’s weekly news consumption. Thus the amount of time a person spends getting news from each platform over the course of an average week was calculated by multiplying their session length by their daily

frequency and their weekly frequency. The following equation specifies this calculation in minutes spent on news (*M*) for each platform (*p*) using the variables session length (*S*), daily frequency (*D*) and weekly frequency (*W*).

$$M_P = S \times D \times W$$

This can be calculated for each platform on which a person gets news and provides a wide range of variance in measuring news consumption. Individual platform results can be summed to arrive at an overall number of how long a respondent spends getting news from all platforms in an average week. A person's mobile news dependency, then, is the ratio of their time spent getting mobile news to their time spent getting news on all platforms combined, as specified in the following equation.

$$Mobile\ news\ dependency = \frac{M_{mobile}}{M_{overall}}$$

Altogether, these measures provide a more detailed analysis of how and when people get news than is typically available. These measures are all based on self-reports, which are known to be subject to overestimation in the case of smartphone use (Butt & Phillips, 2008). If this is the case, then respondents in this analysis will appear to consume mobile news more than they actually do, effectively presenting a best-case scenario for mobile news consumption.

NEWS KNOWLEDGE

News knowledge is relevant in answering RQ5, which asks "What demographic characteristics are associated with news knowledge?" It is also the dependent variable in H3 ("Overall news use is positively related to news knowledge.") and H4a and b ("Mobile news dependency is negatively associated with average session length," and "Average session length is positively associated with news knowledge"). Finally, it is an intervening variable in H5, which tests the Mobile News Dependency Model and

predicts, ("Mobile news dependency will be negatively related to civic engagement, mediated by average news session length and news knowledge."). News knowledge was measured using a quiz based on issues and people prominently discussed in news coverage at the time of the survey. This same approach is used by the annual Pew Research Center News IQ quiz and other measures of news knowledge (Eveland, Jr. & Scheufele, 2000; Eveland, Jr., 2001; Fraile & Iyengar, 2014). Some questions were patterned after questions used on the News IQ quiz; others were developed by the researcher based on contemporary news coverage. The questions were designed to cover a broad range of topics including national security, education, health care, economy, and foreign affairs. The survey included five multiple choice questions about recent news items. The questions were: "Which federal agency's documents did Edward Snowden leak to the news media?" (NSA); "What does the term 'Common Core' refer to?" (school curriculum standards for language and math); "Did the Affordable Care Act meet, exceed, or fall short of its target number of enrollees?" (exceeded the target number); "The U.S. unemployment rate increased during the 2008 recession. How does today's unemployment rate compare?" (it is lower than during the recession); "Of what country is Vladimir Putin president?" (Russia). The number of correct answers a respondent gave is their news knowledge score, ranging from 0 to 5.

CIVIC ENGAGEMENT

Civic engagement is the dependent variable in the Mobile News Dependency Model, specified in H5 as, "Mobile news dependency will be negatively related to civic engagement, mediated by average news session length and news knowledge." This variable is also key to answering RQ6, which asks, "What demographic characteristics are associated with civic engagement?" Civic engagement is a multi-dimensional

construct that includes participation in political and community activities (Brady, 1999; Verba & Nie, 1972). These activities may include voting, contributing money, volunteering, attending meetings, communicating with public officials, protesting or boycotting, and mobilizing others, among other things. This study used six questions to measure civic engagement, asking participants whether they had voted in 2012 and whether they had done each of the following five activities within the past year: contacted an elected official; attended a public meeting or hearing to discuss community problems; signed or shared a petition; donated money to a campaign or political cause; donated money to or volunteered for a charity or community organization. Respondents may have answered yes or no to each of these questions, and responses were summed to provide a civic engagement score ranging from 0 to 6. A score of 0 represents low civic engagement, and a score of 6 represents high civic engagement.

NEWS INTEREST

Interest in news, particularly political news, is likely to be associated with all the variables in the Mobile News Dependency Model. Political interest is a strong predictor of civic engagement (Zukin et al., 2006), and interest in news logically would be associated with news knowledge. News interest is also likely associated with news consumption, and other studies have controlled for this variable (Fraile & Iyengar, 2014). For this reason, it was necessary to construct a measure of news interest. Respondents were asked whether they often, sometimes, occasionally or never pay attention to a wide range of news subjects and categories. These will be subjected to a factor analysis in order to determine which subjects load together and to create an index of news interest. For instance, it is expected that national news, local news, politics, government news, and election news might load together. Responses to the selected news categories will be

summed and then divided by the number of news categories in the index in order to produce an index of news interest ranging from 0 (low interest) to 4 (high interest).

STATISTICAL ANALYSIS

Analysis will be conducted using the Statistical Package for the Social Sciences software. To answer the six research questions about demographic profiles, frequencies and crosstabulations will be performed. Statistically significant differences between demographic groups will be found using chi square and appropriate ordinal-level statistics. The demographic variables under consideration are age, gender, race, income and education. The dependent variables for these research questions are mobile device ownership, news use, news knowledge, and civic engagement.

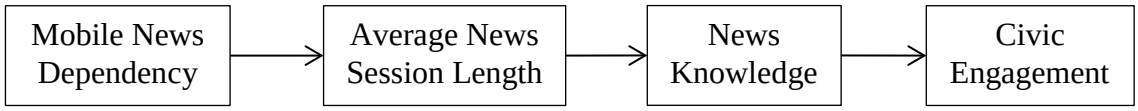
To test H1 ("Mobile news sessions will be shorter than news sessions on other platforms.") and H2 ("Mobile news will be accessed more times per day than news on other platforms."), results will be analyzed using repeated measures ANOVA. This method compares within-subject means across conditions or categories. The null hypothesis is that means across conditions are equal, so repeated measures ANOVA tests whether the mean for one condition is significantly different from the means for the other conditions. This study hypothesized that mobile news use would happen in shorter sessions (H1) and more times per day (H2) than news use on other platforms, so repeated measures ANOVA is suitable to test these two hypotheses.

H3 predicted, "Overall news use is positively related to news knowledge." H4a and b predicted "Mobile news dependency is negatively associated with average session length," and "Average session length is positively associated with news knowledge." Finally, H5 tests the Mobile News Dependency Model and predicts, "Mobile news dependency will be negatively related to civic engagement, mediated by average news

session length and news knowledge." These hypotheses will be tested using multiple regression. Gender and race are nominal measures, which can be included in multiple regression if they are recoded as dichotomous variables. Thus gender was recoded with 0 being male and 1 being female, and race was recoded with 0 being white and 1 being non-white.

In addition to the regression analysis, H5 (the Mobile News Dependency Model, Figure 5.1) will be tested using structural equation modeling in AMOS. The variables mobile dependency, average session length (computed as the total number of minutes spent on news across platforms divided by the total number of news sessions across platforms), news knowledge and civic engagement are all observed variables. For each of these observed variables, the effects of age, gender, race, income, education, and news interest will be residualized. Model fit will be tested and reported.

Figure 6.1. The Mobile News Dependency Model, showing relationships between mobile news use, news session length, news knowledge and civic engagement.



Measures: Study 2

Study 2 seeks to clarify and refine the measurements taken in Study 1. The goal was to partially replicate Study 1 using refined mobile news consumption measures plus new controls, which should strengthen the Mobile News Dependency Model. The same demographic measures were used in both studies. Measures of civic engagement and news interest were the same in both studies. The following section covers changes to

measures of news consumption, news snacking, and news knowledge, and presents additional control variables that were added in Study 2.

NEWS CONSUMPTION

The battery of news consumption questions was altered in Study 2. First, smartphones and tablets were treated separately rather than being grouped as mobile devices. Secondly, a set of questions was asked about news consumption on that platform yesterday in order to focus respondents on specific, recent activities. The first question for each platform studied asked how many days per week a person gets news on that platform. Next, respondents were asked whether they got news on that platform yesterday, and if so, how long they spent getting news on that platform yesterday. Respondents who got news yesterday on that platform were asked whether their news consumption happened "all at once" or "spread out over the course of the day." If respondents answered that their consumption was all at once, then the total time consumed is the same as session length, because there was only one session. But if respondents indicated that their consumption on that platform yesterday was spread out over the course of the day, then a final question measured the length of their last session in minutes.

NEWS SNACKING

A series of questions was designed to identify which respondents were habitual news snackers. The first asked which of the following statements best describes how they generally get news: "You briefly check in on news," "You get news in longer sittings," "You get news in both longer sittings and brief check-ins," "Other." Next they were asked, "When you do get news, about how many minutes do you usually spend on news before moving on to something else?" Responses to this question serve as a measure of

average session length across platforms. Finally, respondents were presented with the following matrix of statements and were asked to rate how well each of them described their news consumption habits on a 4-point scale ranging from "Not at all" to "A lot."

a) You get news in bits and pieces throughout the day.
b) You get news in longer sittings of 20 minutes or more.
c) When you get news, you focus on it for periods of 20 minutes or more.
d) You generally get news in short bursts.
e) You usually read, watch or listen to only one or two news stories before moving on to something else.
f) You usually spend more than 20 minutes getting news before moving on to something else.

Items b, c, and f were reverse coded and all six items were subjected to scale analysis. The items loaded together and have a Chronbach's alpha of .852 (M = 2.831, SD = .739). The six items were summed and then divided by 6 in order to form an index of news snacking with scores ranging from 1-4.

NEWS KNOWLEDGE

The news knowledge questions followed the same format as in Study 1, but the questions had to be updated to address recent news items. The questions were, "Which major U.S. city recently voted to raise the minimum wage to $15?" (Los Angeles); "The largest auto recall in history was recently announced because of defective:" (airbags); "To comply with the health care law, most Americans must now indicate they have health insurance coverage when they:" (file their taxes); "The United States recently re-established diplomatic relations with which country?" (Cuba); and "Because of a recent U.S. Court of Appeals ruling and a change to the law, which federal agency can no longer collect Americans' phone records in bulk?" (NSA). Again, the number of correct answers a respondent gave was their news knowledge score, ranging from 0 to 5.

CONTROL VARIABLES

Given their connection to civic engagement, three additional control variables were added in Study 2. They are political efficacy, political partisanship and discussion network size. Political efficacy is a measure of how much a person feels they have power to influence politics and is a predictor of a person's level of engagement (Form & Huber, 1971; Jung et al., 2011; Reef & Knoke, 1999). This is because a person is more likely to take action if they believe that action will have an effect. Respondents were asked to what extent they agreed with the following statements: "People like me can influence government," "I have a good understanding of the important political issues facing our country," "People like me don't have any say in what the government does," "No matter whom I vote for, it won't make a difference," and "I don't think public officials care much about what people like me think." Responses for the last three items were reverse coded. The items, "I consider myself qualified to participate in politics," and "I have a good understanding of the important political issues facing our country" were summed and divided by 2 to create a measure of internal political efficacy ($M = 2.51$, $SD = .89$, Spearman-Brown = .798). The remaining items were summed and then divided by 4 in order to create an index of external political ($M = 2.46$, $SD = .80$, $\alpha = .819$). Both indicies range from 1 to 4.

Political partisanship is seen as an indicator of involvement in politics. The more you identify with a political party, they more likely you are to participate in the political system (Verba et al., 1995; Weisberg, 1999). Political partisanship was measured using one item that asked respondents to place themselves on an 11-point scale ranging from strong democrat (1) to independent (6) to strong republican (11). Which party a person identifies with is not so important as the strength of their identification, so this scale was

folded such that a person answering “6” scores a 0 on political partisanship, and a person answering “1” or “11” scores 5. Thus political partisanship scores range from 0-5.

The number of people with whom a person discusses public affairs is an indicator of social capital and civic engagement (S. W. Campbell & Kwak, 2011b; Huckfeldt et al., 2004). Discussion network size was measured both offline and online using open-ended questions. They were, “Think about the people you have talked to regarding politics or public affairs. During the past week, about how many total people have you talked to face-to-face or over the phone about politics or public affairs?” and “Still thinking about the people that you have talked to about politics or public affairs during the past week, about how many people would you say you have talked to via the Internet, including texting, e-mail, chat rooms, social networking sites and micro-blogging sites?” Answers to each of these questions can be used as control variables in models testing civic engagement (Gil de Zúñiga et al., 2014; Molyneux, Vasudevan, & Gil de Zúñiga, 2015).

STATISTICAL ANALYSIS

To test the hypotheses in Study 2, analytical techniques to those used in Study 1 can be used again. The research questions regarding demographic profiles will be answered using crosstabs and regression analyses, as in Study 1. H6 predicts, “Mobile news sessions will be shorter than news sessions on other platforms.” This can be tested using repeated measures ANOVA, as in Study 1. H7 predicts that “mobile news consumption is more likely to be spread throughout the day than news consumption on other platforms.” This question also requires the use of repeated measures, but in this case the outcome variable is dichotomous (“all at once” or “spread throughout the day”) and so repeated measures logistic regression is appropriate.

H8 predicts that “Those who get most of their news from a smartphone will score higher on an index of snacking than those who get most of their news on other platforms.” In this case the independent variable (smartphone primary users) is dichotomous and the dependent variable is ordinal. For H9 (“News snacking is negatively related to newsknowledge”) and H10 (“News snacking is negatively related to civic engagement”), both variables are ordinal. These three hypotheses may all be tested using multiple linear regression.

H11 investigates the relationship among mobile news use, news snacking, news knowledge and civic engagement. This will be done using regression modeling. The variables smartphone primary news use, news snacking, news knowledge and civic engagement are all observed variables. For each of these, the effects of age, gender, race, education, income, news interest, political efficacy, political partisanship and online and offline discussion network size will be controlled.

CHAPTER 7: RESULTS

Overview

This chapter presents results from two online surveys, labeled Study 1 and Study 2, that were conducted with the goal of testing the proposed Mobile News Dependency Model. The model theorizes which factors might intervene in the relationship between mobile news use and civic engagement. Study 1 surveyed U.S. adults in summer 2014, asking questions about getting news on mobile devices and other platforms, news session length, news knowledge, and civic engagement. Additionally, in recognition of the fact that demographic-news consumption relationships in the pre-mobile-news landscape may not hold in the mobile landscape, Study 1 also examines these relationships in six research questions. Study 2's goal was to fine-tune the proposed model, so a second online survey was conducted in summer 2015 using new and refined measures for news consumption and snacking on news, but keeping the same approach to measuring news knowledge and civic engagement as in Study 1.

Study 1

The Study 1 online survey was conducted in summer 2014 and collected 1,505 valid responses, 52% from females and 48% from males. People ages 18 to 29 made up 22% of the sample; 35% were aged 30-49; 28% were aged 50-64; and 14% of the sample was age 65 or older. The sample was 61% white, 13% black, 19% Hispanic or Latino, 5% Asian American and 1.5% Native American. With regard to education, 45% of the sample had a college degree or higher. For income, slightly more than half the sample (52%) reported a household income of less than $50,000. These figures closely match those provided by the U.S. Census Bureau. The Census reports that about 63% of the country's population is white (not Hispanic or Latino), 17% of the population identifies

as Hispanic or Latino, 5% are Asian American and 1.2% are Native American. According to the Census, about 14% of the population is over age 65, and the median household income is $53,000. The Census reports that 29% of the population has a bachelor's degree or better, so the sample studied here is better educated than the American population. See Appendix 3 for a table comparing Study 1 demogaphics to U.S. Census estimates.

MOBILE DEVICES AND NEWS

The first step in understanding these results is to understand the contours of the mobile landscape. RQ1 asked, "What are the demographics of mobile device users in the United States and how do mobile device users compare with non-users?" In this study, 64% of respondents reported owning a smartphone and 51% reported owning a tablet. Smartphone ownership and tablet ownership go together – if a person owns one, they are likely to own the other ($r = .365$, $p < .001$). Age is a significant determinant of smartphone ownership, with younger people being more likely to own smartphones (see Table 7.1). Among those 18-29, 80% own a smartphone, as do 78% of those ages 30-49. Among those ages 50-64, only 48% own a smartphone, and the number is 35% among those 65 and older. These differences are statistically significant ($\chi^2 = 198.54$, $p < .001$; Phi = .366, $p < .001$). A similar trend is seen for tablet ownership, with the two younger generations significantly more likely to own tablets than the two older generations ($\chi^2 = 101.72$, $p < .001$; Phi = .263, $p < .001$). So even though a majority of Americans own smartphones and tablets, ownership is significantly higher among younger adults.

Table 7.1. *Mobile device ownership by age group.*

Age	Percent owning smartphone	Percent owning tablet
18-29	80	59
30-49	78	64
50-64	48	37
65 and older	35	34

Note: Smartphone N = 1479; tablet N = 1471

Smartphone owners are better educated than non-owners (χ^2 = 18.19, Phi = .111, $p < .001$) and have higher incomes than non-owners (χ^2 = 62.39, Phi = .205, $p < .001$). The same is true for tablet owners. Tablet owners are better educated than non-owners (χ^2 = 8.16, Phi = .074, $p < .01$) and have higher incomes than non-owners (χ^2 = 44.14, Phi = .173, $p < .001$). See Table 7.2.

Table 7.2. *Mobile device ownership by education and income.*

	Percent owning smartphone	Percent owning tablet
Education		
No college degree	59	48
College degree or higher	69	55
Income		
Income less than $50,000	56	44
Income $50,000 or more	77	62

Note: All differences are significant at $p < .01$ or better.

Considering race and ethnicity, those identifying as Asian Americans and those identifying as Hispanic or Latino are significantly more likely than other racial groups to own smartphones (χ^2 = 57.352, $p < .001$; Phi = .196, $p < .001$), and the same is true for tablet ownership (χ^2 = 46.37 $p < .001$; Phi = .177, $p < .001$). See Table 7.3.

Table 7.3. *Mobile device ownership by race.*

Race	Percent owning smartphone	Percent owning tablet
Asian American	81	69
Hispanic or Latino	80	66
African American or Black	59	43
Native American	59	46
White	58	47

Note: Smartphone N = 1488; tablet N = 1480

In summary, mobile device owners are likely to be younger, better educated and wealthier than non-owners. Those identifying as Asian American, Hispanic or Latino are more likely to own smartphones than those of other racial and ethnic groups.

Before the role of mobile news consumption in the Mobile News Dependency Model can be fully understood, the context of news use in general is examined in RQ2, which asked, "What is the demographic profile of news users, and how do news users compare to non-users?" The most common response to the question, "How many days in an average week do you get news" was 7 days, with about 44% of respondents reporting that they get news every day during an average week. The second most common response was 5 days, with 16% of respondents giving this answer. Only 5% of respondents reported that they never get news. In order to determine which demographic variables were significant predictors of news consumption, demographic variables (age, gender, race, income and education) were entered into a regression model predicting the number of days per week a respondent gets news. Results show that age ($\beta = .304$, $p < .001$) and income ($\beta = .102$, $p < .001$) were the strongest predictors. Being white, being male, and having more education all had small ($\beta < .09$) but significant effects (at $p < .05$ or better) on news consumption. Together these variables account for 14.7% of the variance in

news consumption. Thus, news consumers are likely to be older and wealthier, and slightly more likely to be white, male and more educated.

PLATFORMS FOR NEWS

People now have more choices than ever when it comes to getting news. Therefore, RQ3 asked, "On which platforms do people get news?" Respondents were asked how many days per week, on average, they get news on five platforms: in print, online, on television, by radio and on mobile devices. Results indicate that most people get news from multiple platforms. Users of each platform were identified as those who said they got news on that platform at least one day a week. Nearly everyone in the sample consumes news on multiple platforms. About 95% of respondents reported getting news at least one day a week on 2 or more platforms; 82% of respondents reported getting news at least one day a week on 3 or more platforms. About 29% of respondents said they get news at least one day a week from all five platforms in this study. Thus more than four-fifths of U.S. adults gets news from three, four or five platforms at least one day a week.

In order to identify significant predictors of multiplatform news consumption, the demographic variables age, gender, race, income and education were entered into a regression model predicting the number of platforms used for news. Results show that being younger ($\beta = -.252$, $p < .001$) and having higher income ($\beta = .214$, $p < .001$) were the strongest predictors of multiplatform news consumption. That is, younger adults and those with higher incomes were likely to get news on more platforms. Being male and having more education both showed weak but significant positive effects on multiplatform news consumption. Together these variables account for 12.4% of the variance in the number of platforms used for news. Race did not have a significant effect

in this regression model[1], nor in a regression model that analyzed races separately using dummy variables. But a crosstab analysis found that Hispanics and Asian Americans are significantly more likely than other groups to be users of all five platforms (χ^2 = 59.33, Phi = .203, $p < .001$).

Mobile news users are particularly likely to get news from multiple platforms. Of the 767 respondents who reported getting news on a mobile device, only 2 got news exclusively from that mobile device. More than half (54%) reported getting news on all five platforms, and another quarter (27%) reported getting news on four platforms. Thus 81% of mobile news users also use 3 or 4 *other* platforms to get news. To determine whether mobile news use predicts use of multiple platforms, a second block was added to the regression model predicting multiplatform news use. This block contained a dichotomous variable indicating whether respondents were mobile news users. Results shows that mobile news use was a significant predictor of using multiple platforms for getting news ($\beta = .645$, $p < .001$). See Table 7.4.

[1] Dichotomizing race into white and minority categories is common practice when including race as a variable in a regression model, even though it is not ideal because there are differences among minority racial groups. For this reason additional analysis of categorical data using crosstabs is presented.

Table 7.4. *Regression model showing predictors of multiplatform news use.*

	Number of platforms used for news (0-5)
Block 1: Demographics	
Age	.055*
Gender (female)	-.047*
Race (white)	.024
Income	.126***
Education	.023
ΔR^2 (%)	12.4***
Block 2: Mobile News consumption	
Mobile news user	.645***
ΔR^2 (%)	30.6***
Total R^2 (%)	43.0***

Note: N = 1421. Cell entries are final-entry OLS standardized Beta (β) coefficients. ∗p < .05; ∗∗p < .01; ∗∗∗p < .001.

The platform most commonly used along with mobile devices is the computer. Almost 98% of mobile news users also reported getting news on computers, and the percentages are high for mobile users who get news on the other platforms as well (TV, 92%; radio, 71%; print, 70%). Considering the correlations among usage of the platforms for news presented in Table 7.5, the strongest pairings are between print and radio (phi = .227, p < .001), mobile and computer (phi = .213, p < .001), and mobile and radio (phi = .209, p < .001). It appears that mobile devices are most frequently used in combination with other means of getting news rather than being a singular means of getting news.

Table 7.5. *Correlations among usage of various platforms for news. Note: Each respondent is classified as a user (1) or non-user (0) of each platform for getting news.*

	Computer use	TV use	Radio use	Mobile use
Print use	.092***	.156***	.227***	.098***
Computer use		-.022	.167***	.213***
TV use			.115***	.094***
Radio use				.209***

Note: N = 1445. Cell entries are phi coefficients. ∗p < .05; ∗∗p < .01; ∗∗∗p < .001.

Finally, it is helpful to know how often each platform is used for news. About 66% of respondents reported being print users. About 92% of respondents reported being online news users. About 90% of respondents reported being TV news users. About 61% of respondents reported being radio news users. And about 53% of respondents reported using mobile devices to get news.

PROFILE OF MOBILE NEWS USERS

With the background of the findings above, it is now possible to combine mobile use and news use in one. RQ4 asked, "What are the demographic characteristics of mobile news users and how do they compare to mobile news non-users?" More than half (53%) of respondents reported consuming news at least one day a week on mobile devices. The two younger age groups were significantly more likely to include mobile news consumers than older generations ($\chi^2 = 323.83$, $p < .001$; Phi = .475, $p < .001$) (see Table 7.6). Those with only a high school degree are significantly less likely to be mobile news consumers. Those with higher incomes are significantly more likely to be mobile news consumers. As was the case with mobile device ownership, those who identified as Asian American and those who identified as Hispanic or Latino are significantly more likely to be mobile news consumers than other groups. Whites are significantly less likely

than other groups to be mobile news consumers (χ^2 = 62.79, p < .001; Phi = .209, p < .001).

Table 7.6. *Mobile news use by age and race.*

	Percent consuming mobile news
Age	
Age 18-29	79
Age 30-49	70
Age 50-64	30
Age 65 and older	20
Race	
Asian American	80
Hispanic or Latino	69
Native American	57
African American or Black	50
White	47

Note: Age N = 1433; race N = 1442.

Further analysis of mobile news use was conducted using regression analysis. Demographic variables (age, gender, race, income and education) were entered into a regression model predicting the number of days per week that a respondent gets news on a mobile device in order to determine which of these were significant predictors of mobile news consumption. Results show that being younger (β = -.395, p < .001) and having higher income (β = .157, p < .001) were the strongest predictors of mobile news consumption (see Table 7.7). That is, younger people and those with higher incomes were more likely to get news on mobile devices. Gender did not have a significant effect. Being non-white and having more education both showed weak but significant effects on mobile news consumption, confirming the results of the crosstab analysis. In summary,

younger, wealthier and more educated individuals are more likely to be mobile news consumers. Minorities, especially Asian Americans, Hispanics or Latinos are more likely to be mobile news consumers.

Table 7.7. *Regression model showing predictors of mobile news use.*

	Mobile news use
Block 1: Demographics	
Age	.395***
Gender (female)	-.030
Race (white)	-.058*
Income	.157***
Education	.102***
ΔR^2 (%)	19.9***

Note: N = 1421. Cell entries are final-entry OLS standardized Beta (β) coefficients. ∗p < .05; ∗∗p < .01; ∗∗∗p < .001.

PROFILES OF NEWS KNOWLEDGE AND CIVIC ENGAGEMENT

As discussed in previous chapters, this dissertation set out to test a Mobile News Dependency Model that proposed civic engagement was a function of mobile news use mediated by session length and news knowledge. First, these variables are investigated individually. RQ5 asked, "What demographic characteristics are associated with news knowledge?" Recall that news knowledge was measured using five questions about recent public affairs appearing in the news; the number of correct answers is the news knowledge score. Scores ranged from 0 to 5 (M = 2.84, SD = 1.24) and approximated a normal distribution (Skewness = -.203). Just over 8% of respondents answered all five questions correctly; 24% answered 4 questions correctly; 29% answered 3 questions correctly; 23% answered 2 questions correctly; 12% answered 1 question correctly; and 3

percent answered no question correctly. The demographic variables age, gender, race, income and education were entered into a regression model predicting news knowledge in order to determine which of these were significant predictors of news knowledge. Results show that being male (β = -.187, $p < .001$) and having more education (β = .197, $p < .001$) were the strongest predictors of news knowledge. Being white, being older and having more income all had weak but significant positive effects on news knowledge (see Table 7.8).

The civic engagement scale was constructed in a similar manner to news knowledge, by asking six questions about whether respondents had done specific civic activities in the last year. The number of "yes" answers is their civic engagement score. Scores ranged from 0 to 6 (M = 2.28, SD = 1.66) and approximated a normal distribution (Skewness = .583). Only 6% of respondents scored a 6; 7% scored a 5; 11% scored a 4; 16% scored a 3; 24% scored a 2; 24% scored a 1; and 13% scored 0. Demographic variables (age, gender, race, income and education were entered into a regression model predicting civic engagement in order to determine which of these were significant predictors of civic engagement. Results show that having higher education (β = .204, $p < .001$), more income (β = .110, $p < .001$) and being older (β = .110, $p < .001$) were the strongest predictors of civic engagement. Minority status had no significant effect, but there was a weak but significant relationship between being male and civic engagement (see Table 7.8). In summary, being older, being male, and having higher education and income are all associated with higher levels of news knowledge and civic engagement.

Table 7.8. *Demographic characteristics associated with news knowledge and civic engagement.*

	News Knowledge	Civic Engagement
Age	.074**	.110***
Gender (female)	-.187***	-.067**
Race (white)	.071**	.017
Education	.197***	.204***
Income	.060*	.110***

Note: N = 1435. Cell entries are final-entry OLS standardized Beta (β) coefficients * = p <.05, ** = p < .01, ** = p < .001

MOBILE NEWS CONSUMPTION HABITS

Because the mobile dependency model assumes news session length matters in news knowledge and civic engagement, H1 tested the following hypothesis: "Mobile news sessions will be shorter than news sessions on other platforms." To test this relationship, a repeated-measures ANOVA looked at within-subjects differences in session length across the five platforms. Session length was measured in ten-minute increments, where 1 = ten minutes or less, 2 = 11-20 minutes, and 7 = more than one hour. Thus respondents each have a session length score ranging from 1 to 7. A main effect was found, such that there are significant differences in mean session length score across platforms ($F(3.69, 5278.92) = 400.254$, $p < .001$, $\eta^2 = .219$). Post hoc tests using the Bonferroni correction revealed that average news session length score on mobile devices was significantly lower than average news session length scores for print, computers and television (see Table 7.9). The average news session length score on mobile was lower than on radio, but this difference was not statistically significant. This indicates that news session lengths on mobile devices are shorter than news sessions on print, computers and television, supporting H1.

Table 7.9. *Comparison of average news session length scores across platforms.*

	Session length score		
Platform	Mean	Standard deviation	Difference from mobile mean
Television	3.5	2.12	2.05***
Computer	2.43	1.82	.98***
Print	1.89	1.91	.44***
Radio	1.56	1.85	.11
Mobile device	1.45	1.86	-

Note: News session length was measured in ten-minute increments, where 1 = ten minutes or less, 2 = 11-20 miuntes or less, and 7 = more than one hour. N = 1431.* = p <.05, ** = p < .01, ** = p < .001

Because there are a large number of people in the sample who do not get mobile news at all (N = 679, 43%), this means that "0" is the most common response to the question asking about news session length on mobile devices. When computing a numerical average, this would tend to bring down the mobile average. In other words, the analysis above may be showing simply that fewer people get news from mobile devices compared with other platforms. Therefore, a second analysis was completed excluding those who do not get news on mobile devices. Because non-users of other platforms are included in this analysis, the comparison will be least favorable for mobile devices. Still, this repeated-measures ANOVA also showed significant differences in session length across platforms ($F(3.68, 1771.64) = 195.05$, $p < .001$, $\eta^2 = .178$). Post hoc tests using the Bonferroni correction revealed that mobile users' average news session length on mobile devices was significantly shorter than their average news session length for computers (mean difference = -.166, $p < .05$) and television (mean difference = -.884, $p < .001$), but was significantly longer than their sessions with print (mean difference = .609, $p < .001$) and radio (mean difference = .680, $p < .001$). That is to say, mobile news users tended to spend less time on print and radio news sessions and more time on computer and

television news sessions, when compared with their mobile news sessions. Thus H1 is fully supported when comparing mobile to computers and television, and partially supported when comparing mobile to print. It is not supported when comparing mobile to radio. Overall, this indicates strong support for H1.

H2, "Mobile news will be accessed more times per day than news on other platforms," was tested using linear mixed models to conduct a repeated-measures ANOVA, looking at within-subjects differences in the number of times per day respondents reported using each of the five platforms. A main effect was found, such that there are significant differences in the number of times per day each platform was accessed ($F(4, 5350) = 45.06$, $p < .001$). Post hoc tests using the Bonferroni correction revealed that the mean number of times per day news was accessed on mobile devices was significantly higher than in print, on TV, and on radio, and was not significantly different from the mean for computers (see Table 7.10). This indicates support for H2.

Table 7.10. *Comparison of average number of times per day a platform is used for news.*

		Session length in minutes		
Platform	N	Mean	Standard deviation	Difference from smartphone mean
Computer	1329	2.94	2.49	0.04
Smartphone	738	2.90	16.81	-
Television	1448	2.26	2.75	0.64***
Radio	887	2.20	2.09	0.70***
Print	953	1.69	2.32	1.21***

Note: Session length was asked only if the respondent got news on that platform at least 1 day per week. Therefore N ranges from 738 to 1448. * = p <.05, ** = p < .01, ** = p < .001

NEWS KNOWLEDGE AND NEWS CONSUMPTION

H3, "Overall news use is positively related to news knowledge" helps set up a test of the variables in the Mobile News Dependency Model. Demographic variables (age, gender, race, income and education) were entered into a regression model predicting news knowledge, followed by a second block entering the number of days per week a person gets news (see Table 7.11). Results show that there is a positive relationship between overall news use and news knowledge, controlling for demographic variables ($\beta = .202$, $p < .001$, $\Delta R^2 = .035$***). Thus the more often a person gets news, the higher their score on a news knowledge quiz is likely to be. H3 is supported.

Table 7.11. *Regression model showing overall news use as a predictor of news knowledge.*

	News Knowledge
Block 1: Demographics	
Age	.013
Gender (female)	-.169***
Race (white)	.059*
Income	.039
Education	.187***
ΔR^2 (%)	12.2***
Block 2: News use	
Days per week getting news	.202***
ΔR^2 (%)	3.5***
Total R^2 (%)	15.7***

Note: N = 1480. Cell entries are final-entry OLS standardized Beta (β) coefficients. ∗p < .05; ∗∗p < .01; ∗∗∗p < .001.

The next hypothesis focused on a specific relationship between mobile news reading habits and news knowledge. H4a and b predicted that "Mobile news dependency is negatively associated with average session length," and "Average session length is positively associated with news knowledge." Recall that average session length was computed by summing session length responses across the five platforms and dividing by 5 (M = 2.17, SD = 1.29). Using the formula proposed in Chapter 6, mobile news dependency was calculated by dividing the time spent getting news on mobile devices by the total time spent getting news (range from 0 to 1, M = .13, SD = .20). This variable is skewed right because most people are not mobile dependent (skewness = 1.94, kurtosis = 3.68, variance = .04). In a simple bivariate correlation, mobile news dependency and average session length are correlated with each other but are not correlated with news knowledge, as H4b predicted. To test these relationships in more detail, mobile news dependency was entered into a regression model predicting average session length, controlling for demographic variables and news interest. Mobile news dependency is a weak but significant predictor of average session length, but accounts for less than 1% of the variance in session length ($\beta = .059$, $p < .05$, $\Delta R^2 = .003$). This relationship, however, is in the opposite direction expected. Mobile news dependency and average session length were then entered into a regression model predicting news knowledge, controlling for demographic variables and news interest. Results show that mobile news dependency is not a significant predictor of news knowledge ($\beta = .040$, $p = .153$, $\Delta R^2 = .001$). Finally, results show that average session length is significantly related to news knowledge (see Table 7.12), but in the opposite direction that was expected ($\beta = -.101$, $p < .001$, $\Delta R^2 = .009$). H4a and b are not supported.

Table 7.12. *Regression models predicting average session length, news knowledge, and civic engagement.*

	Average Session Length	News Knowledge	Civic Engagement
Block 1: Demographics			
Age	-.138***	.036	.107***
Gender (female)	-.044	-.150***	-.017
Race (white)	-.043	.068**	.012
Income	.037	.023	.058*
Education	.002	.182***	.140***
News Interest	.305***	.198***	.237***
ΔR^2 (%)	11.5***	13.8***	17.1***
Block 2: Mobile Dependency			
Mobile dependency	.059*	.040	.062*
ΔR^2 (%)	0.3*	0.1	0.4*
Block 3: Avg. session length			
Average session length		-.101***	.141***
ΔR^2 (%)		.09***	1.6***
Block 4: News knowledge			
News knowledge			.049
ΔR^2 (%)			0.2
Total R^2 (%)	11.8***	14.8**	19.4***

Note: N = 1348. Cell entries are final-entry OLS standardized Beta (β) coefficients. ∗p < .05; ∗∗p < .01; ∗∗∗p < .001.

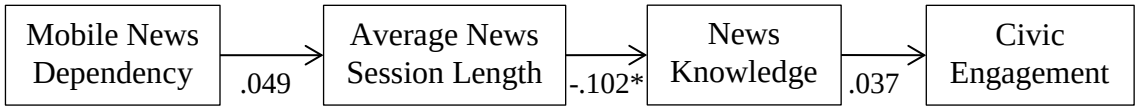
THE MOBILE NEWS DEPENDENCY MODEL

This final section of Study 1 brings together all the key variables tested in earlier hypotheses and connects them to civic engagement through the Mobile News Dependency Model. This model is specified in H5, predicting that "Mobile news

dependency will be negatively related to civic engagement, mediated by average news session length and news knowledge." Again, baseline relationships were tested using bivariate correlations. Mobile news dependency is not correlated with civic engagement. But a relationship is apparent once control variables are added. Mobile news dependency, average session length, and news knowledge were entered into a regression model predicting civic engagement, controlling for demographic variables and news interest. Results show that mobile news dependency is a significant predictor of civic engagement, but in a positive direction ($\beta = .062$, $p < .05$, $\Delta R^2 = .004$*) (see Table 7.12). This suggests that there is a significant — and positive — path from mobile news use to civic engagement, but it does not go through average session length and news knowledge as theorized. Overall, the strongest predictor of civic engagement was news interest ($\beta = .237$, $p < .001$).

To confirm the results of the regression analysis, the variables of interest were entered into a structural equation model. The control variables (political news interest, age, gender, race, education and income) were residualized and the four variables of interest were entered as theorized in H5 and Figure 4.1. The model is not a good fit for the data ($\chi^2 = 35.36$; df = 3; $p < .001$; RMSEA = .091, SRMR = .085), and only one path (from average session length to news knowledge) is significant (See Figure 6.2). H5 is not supported.

Figure 7.1. Results of SEM testing of the Mobile News Dependency Model. Path entries are standardized SEM coefficients (Betas); * = p <.05, ** = p < .01, ** = p < .001. The effects of political news interest and demographic variables (age, gender, race, education and income) have been residualized. Model goodness of fit: $\chi^2 = 35.36$; df = 3; $p < .001$; RMSEA = .091, SRMR = .085.



Considering the findings of Study 1 as a whole, however, support for certain links within the Mobile News Dependency Model can be found. The model essentially includes three links — from mobile news use to shorter sessions; from shorter news sessions to news knowledge; and from news knowledge to civic engagement. The first link is supported, as in H1 and H2. Furthermore, there is a connection between mobile news use and civic engagement, even though results of the SEM analysis show that the connection is not the one specified in the Mobile News Dependency Model. Thus the overall relationship between mobile news use and civic engagement appears to take a different path than the one specified. Study 2 seeks to refine the measures used in Study 1 and further examine the links in the Mobile News Dependency Model.

Study 2

Study 2 was conducted in summer 2015. It collected 1166 valid responses, 49.7% from males and 50.3% from females. People ages 18 to 24 made up 22% of the sample; 59% were aged 25-44; 18% were aged 45-64; and 2% of the sample was age 65 or older. In this sample, 75% of the respondents were white, 8% were African American or black, 7% were Hispanic or Latino, 9% were Asian American, and less than 1% were Native American. With regard to education, 55% of the sample had a college degree or higher. For income, about 55% reported a household income of less than $50,000. This sample is younger, whiter, and better educated than the U.S. population as a whole. Thus the results presented for Study 2 are meant as theory testing, not providing generalizable estimates of actual population values. See Appendix 3 for a table comparing Study 2 demogaphics to U.S. Census estimates.

DEMOGRAPHIC PROFILES OF KEY VARIABLES

As with Study 1, the first steps include investigations of each of the key variables in the hypotheses: mobile news use, news snacking, news knowledge and civic engagement. Therefore RQ7 asked, "What demographic characteristics are associated with mobile news use?" Respondents were asked which platforms they use to get news, and then were asked which of the platforms they selected they use *the most* for news. As was found in Study 1, younger people are significantly more likely to say smartphones are the primary way they get news ($\chi^2 = 35.94$, $p < .001$; Phi = .176, $p < .001$). About 27% of those ages 18-24 and 26% of those ages 25-44 said the smartphone is their primary means of getting news. Only 9% of those age 45-64 said the smartphone is their primary news platform, and nobody over age 65 said so. In this sample, females are significantly more likely than males to report that the smartphone is their primary means of getting news ($\chi^2 = 8.904$, $p < .01$; Phi = .087, $p < .01$). More than a quarter of females (26%) said they get most of their news on a smartphone, compared with 19% of males. The results regarding race and ethnicity confirmed those from Study 1 as well. Hispanics or Latinos were more likely than other racial groups to report that smartphones were their primary way of getting news. (Unlike Study 1, the rate of Asian Americans who reported that smartphones were their primary news source was not significantly different from other racial and ethnic groups.) About 32% of Hispanics said a smartphone was their main news device, compared with 24% of blacks and 22% of whites. There are no significant differences in income or education among those who primarily get news on smartphones.

News snacking was a new variable introduced in Study 2 to better measure the differences between habitual short and long news sessions. RQ8 asked, "What demographic characteristics are associated with news snacking?" News snacking was

measured by asking respondents to rate how well each of six statements described their news consumption habits. Three items described consuming news in short sessions, and the other three described consuming news in long sessions and were reverse coded. These six items were combined and divided by 6 to form an index of news snacking ranging from 1 to 4 (M = 2.83, median = 3, SD = 0.74, α = .852). Snacking on news is a relatively common behavior. Only 14% of respondents scored below 2 on the scale, and the three most common scores (accounting for about 30% of the overall sample) were 3.17, 3.33 and 3.5 (out of 4). The five demographic characteristics were entered into a regression model predicting news snacking (see Table 7.13), showing that only age was a significant predictor of news snacking (β = -.236, $p < .001$). Younger people are significantly more likely to snack on news. It appears that snacking on the news is common across education and income levels, genders, and racial and ethnic groups.

News knowledge was included in Study 2 in a similar fashion to Study 1. It was measured by asking 5 questions about recent public affairs; the number of correct answers is a person's news knowledge score ranging from 0 to 5 (M = 3.52, SD = 1.11). RQ9 asked "What demographic characteristics are associated with news knowledge?" As was the case with Study 1, being older, being male, and having more education are all predictors of higher news knowledge (see Table 7.13). Results of a regression model using demographic characteristics to predict news knowledge showed age to be the strongest predictor of news knowledge (β = .164, $p < .001$), followed by higher education (β = .095, $p < .01$) and being male (β = -.071, $p < .05$).

Finally, the demographic profile of those who are civically engaged was examined again. RQ10 asked, "What demographic characteristics are associated with civic engagement?" Civic engagement was measured using six questions asking respondents whether they had done specific civic activities in the last year; the number of

"yes" answers is their civic engagement score. Scores ranged from 0 to 6 (M = 2.08, SD = 1.43). The five demographic characteristics were entered into a regression model predicting civic engagement, showing that all five were associated with civic engagement. Older adults, females, whites, and those with more income and more education were more likely to be civically engaged (See Table 7.13). The strongest demographic predictors of civic engagement were age ($\beta = .154$, $p < .001$) and education ($\beta = .131$, $p < .001$).

Table 7.13. *Regression models showing relationships between demographic characteristics and news snacking, news knowledge, and civic engagement.*

	News snacking	News knowledge	Civic engagement
Age	-.236***	.164***	.154***
Gender (female)	.042	-.071*	.109***
Race (white)	.034	.039	.096**
Income	.057	.013	.069*
Education	.023	.095**	.131***
Total R^2 (%)	5.5***	4.6***	8.6***

Note: N = 1165. Cell entries are final-entry OLS standardized Beta (β) coefficients. ∗p < .05; ∗∗p < .01; ∗∗∗p < .001.

MOBILE NEWS CONSUMPTION HABITS

The data collected in Study 2 is able to replicate the test in Study 1 suggesting that mobile news sessions are shorter than those on other platforms. In this study, however, session length was measured in minutes, and respondents were first asked to consider their use of that platform yesterday in an effort to achieve more accurate responses. This relationship is tested in H6, which predicts, "Mobile news sessions will be shorter than news sessions on other platforms." This analysis was conducted using linear mixed models in SPSS to conduct a repeated measures ANOVA test. The results of this test

make it possible to compare differences within subjects in means for each platform, even if not every subject uses all available platforms. Session length was measured in minutes by asking how long respondents spent getting news on each platform before moving on to something else. A main effect was found, such that there are significant differences in mean session length score across platforms ($F(5, 2223) = 54.70$, $p < .001$). Post hoc tests using the Bonferroni correction revealed that average news session length on smartphones was significantly shorter than average news session length for all other platforms (see Table 7.14). People reported spending significantly fewer minutes in a news session on a smartphone than on any other platform. The average time spent getting news on a smartphone was less than 12 minutes, the shortest of any platform, compared with about half an hour on television. News sessions on computers were also short, averaging about 15 minutes, but even this time was significantly longer than the smartphone news sessions. This indicates support for H6.

Table 7.14. *Comparison of average news session lengths in minutes across platforms*.

		Session length in minutes		
Platform	N	Mean	Standard deviation	Difference from smartphone mean
Television	441	29.53	21.14	17.91***
Print	120	22.60	15.05	10.97***
Radio	240	20.17	20.54	8.54***
Tablet	110	18.14	24.58	6.51**
Computer	828	15.22	15.16	3.59**
Smartphone	490	11.63	16.81	-

Note: Session length was asked only if the respondent got news on that platform yesterday. Therefore N ranges from 110 to 828. * = p <.05, ** = p < .01, ** = p < .001

The second part of examining mobile news consumption habits was to test whether news is consumed in bits and pieces, or in a few large chunks. This is not an

exact replication of Study 1, which measured the number of times per day a person got news on each platform, but uses a different measure to tap into a similar idea of snacking on news rather than consuming meals. Therefore, H7 predicted that "Mobile news consumption is more likely to be spread throughout the day than news consumption on other platforms." This can be tested in two ways. First is a simple z-test for proportions between dependent groups (because there is overlap among the groups). This test compares respondents for each platform who said their news consumption is spread throughout the day with those who said their news consumption on that platform happened all at once. Results are presented in Table 7.15 and show that the proportion of smartphone users who said their news consumption was spread throughout the day is significantly higher than any other platform except the computer.

The second method of testing this hypothesis is using repeated measures ANOVA to replicate the results found in Study 1. There is not a true mean to compare in this case because the dependent variable is categorical; however, we can set "all at once" equal to -1 and "spread out over the course of the day" equal to 1 and compute means for each platform. Results using this method confirm the t-test analysis, with smartphones scoring significantly closer to 1 than every platform except computers ($F(5, 2223) = 70.54$, $p < .001$). H7 is supported.

Table 7.15. *Proportions of respondents saying their news consumption was spread throughout the day.*

	News consumption spread throughout the day		
Platform	Percentage	Difference from smartphone percentage	z
Smartphone	72.2	-	-
Computer	70.8	1.4	.571
Tablet	52.7	19.5	3.988***
Radio	47.9	24.3	6.443***
Television	33.6	38.6	11.824***
Print	15.0	57.2	11.522***

Note: * = p <.05, ** = p < .01, ** = p < .001

Next is a hypothesis connecting mobile phone usage to snacking in another way: not through numerical measures of session length but by association with news snacking as a consumption behavior. H8 predicted that "Those who get most of their news from a smartphone will score higher on an index of snacking than those who get most of their news on other platforms." The news snacking index is composed of six items asking people to rate how well each statement describes their news consumption habits (shorter sessions versus longer sessions). Respondents were also asked to select which platform they get news on the most, and those that selected "smartphone" are given a 1 in the smartphone primary variable while all other respondents are 0. A bivariate correlation between these two variables suggests support for H8 ($r = .197$, $p < .001$). Demographic variables were entered into a regression model predicting news snacking, followed by a second block containing all control variables, and a final block in which the categorical variable representing those who primarily use smartphones was entered. Results show a significant, positive relationship between primarily getting news on a smartphone and snacking on news ($\beta = .150$, $p < .001$, $\Delta R^2 = .021$***). H8 is supported.

NEWS SNACKING, NEWS KNOWLEDGE AND ENGAGEMENT

The final set of hypotheses and research questions examine relationships between news snacking, news knowledge and civic engagement. H9 predicted, "News snacking is negatively related to news knowledge." Recall that news knowledge was measured using five questions about recent public affairs appearing in the news; the number of correct answers is the news knowledge score. News snacking, again, is an index of questions asking how well six statements describe a respondent's news consumption behavior (shorter sessions versus longer sessions). News snacking is negatively related to news knowledge in a bivariate correlation ($r = -.088$, $p < .01$), but this relationship disappears once control variables are added. Demographic variables, control variables (news interest, political efficacy, political partisanship, and discussion network size), smartphone news use and news snacking were entered into a regression model predicting news knowledge. Results indicate there is no relationship between news snacking and news knowledge in the presence of control variables ($\beta = .003$, $p = .936$). Replacing news snacking with a raw measure of average news session length ("When you do get news, about how long do you usually spend getting news before moving on to something else?") also does not lead to a significant relationship. H9 is not supported.

Table 7.16. *Regression models showing relationships between smartphone news use, news snacking, news knowledge and civic engagement.*

	News snacking	News Knowledge	Civic Engagement
Block 1: Demographics			
Age	-.103**	.098**	.066*
Gender (female)	.023	-.058	.115***
Race (white)	.049	.018	.079**
Income	.070*	-.001	.062*
Education	.065*	.072*	.042
ΔR^2 (%)	5.5***	4.6***	8.7***
Block 2: Control variables			
News interest	-.266***	.193***	.104**
Internal efficacy	-.079*	.088**	.215***
External efficacy	-.059*	-.060*	.126***
Political partisanship	-.010	-.003	.049
Offline network size	-.059*	.011	.153***
Online network size	-.002	-.027	-.003
ΔR^2 (%)	10.5***	4.9***	14.0***
Block 3: Smartphone use			
Smartphone primary	.150***	.037	.074*
ΔR^2 (%)	2.1***	0.1	0.6**
Block 4: News snacking			
News snacking		.006	.028
ΔR^2 (%)		0.0	0.0
Block 4: News knowledge			
News knowledge			.074**
ΔR^2 (%)			0.6**
Total R^2 (%)	18.1***	8.9***	24.0***

Note: N = 1114. Cell entries are final-entry OLS standardized Beta (β) coefficients. ∗p < .05; ∗∗p < .01; ∗∗∗p < .001.

A similar result is found when testing the final hypothesis in this study. H10 predicted, "News snacking is negatively related to civic engagement." Civic engagement was measured by asking respondents which of six civic activities they had participated in during the previous year. The number of "yes" responses is the civic engagement score, ranging from 0 to 6. News snacking is negatively related to civic engagement in a bivariate correlation (r = -.100, p < .01), but this relationship disappears once control

variables are added. Demographic variables, control variables (news interest, political efficacy, political partisanship, and discussion network size), smartphone news use, news snacking, and news knowledge were entered into a regression model predicting civic engagement. Results indicate there is no relationship between news snacking and civic engagement in the presence of control variables ($\beta = .024$, $p = .405$). Replacing news snacking with a raw measure of overall news session length also does not lead to a significant relationship. H10 is not supported.

Considering H9 and H10 together, which tested the effects of news snacking on knowledge and engagement, the method in which people consume news appears to have no effect on how well they learn from it or how civically engaged they are. Snacking has the anticipated effects on knowledge and engagement when comparing only those pairs of variables directly. But it appears that snacking is the opposite of being interested in the news, and being interested in the news is what drives knowledge and civic engagement.

The final two research questions asked about the overall relationship among the four key variables in Study 2: mobile news use, news snacking, news knowledge and civic engagement. H11 predicted, "Mobile news use will be positively related with news snacking, which will be negatively related with news knowledge and civic engagement." Using results from the regression models presented in Table 7.16, it is possible to test this hypothesis. News snacking is associated with smartphone news use, but it is not related to news knowledge or civic engagement. This means it does not act as an intervening variable between smartphone news use and news knowledge or civic engagement. Smartphone news use is not related to news knowledge, but it is associated with higher levels of civic engagement. This is consistent with findings in Study 1 that, as presented in Table 7.12, mobile news dependency is not associated with news knowledge but is positively associated with civic engagement. It was suspected that the pathway from

smartphone news use to civic engagement would be through news knowledge, but results indicate that is not the case. It is also not through session length or news snacking, neither of which has any effect on civic engagement. Thus it appears there is a pathway leading from smartphone news use to civic engagement, but it cannot be specified using variables in this study. If there are intervening variables along this path, they were not identified in this study. As for news knowledge, it appears to be a product of interest or attention rather than being related to choice of news platform or news consumption habits. Thus, H11 is not supported.

Summary of findings

The findings from Study 1 and Study 2 are easily understood together. Both studies found that Hispanics or Latinos are more likely than other racial groups to use smartphones for news and to rely on them as a primary news platform. Younger people are also more likely to use smartphones for news and to rely on them as a primary platform. Both studies confirmed that demographic factors such as age and education remain significant predictors of news knowledge and civic engagement.

Both Study 1 and Study 2 found that news sessions on smartphones are shorter, on average, than news sessions on other platforms. Additionally, people are more likely to access smartphone news more times per day than other platforms (Study 1) and spread out their news consumption across the day when using smartphones (Study 2). Results from both studies suggest that people use smartphones to consume news in bits and pieces throughout the day, effectively snacking on the news.

It was hypothesized in both studies that shorter session lengths or snacking on the news would lead to lower news knowledge, but that's not the case. News knowledge is not directly tied to the length of exposure, though there is some evidence that news

knowledge is related to consistent news exposure (see H3, which shows that overall news use is positively related to news knowledge). It was also hypothesized in both studies that news snacking would lead to lower civic engagement, but that also is not the case. Hypotheses relating to session length and news snacking are not supported.

Other findings include that smartphone users are highly likely to use other news platforms as well, and are especially likely to use four or five different means of getting news. Also, using a smartphone as a primary means of getting news is related to civic engagement. This result is supported in both Study 1 (testing the Mobile News Dependency Model) and Study 2 (using the question asking which platform people use most for news).

CHAPTER 8: DISCUSSION AND CONCLUSION

This study conducted an investigation of news consumption and civic engagement in a mobile landscape by surveying two samples of American adults. This chapter works to integrate the findings of both surveys in a way that illuminates what can be learned about how news consumption and civic engagement have changed along with the widespread adoption of smartphones. News knowledge and the length of time a person spends consuming news were used as key intervening variables between mobile news use and civic engagement. And while there are important links discovered here, it is also clear that there is much more going on between mobile news and civic engagement. The findings of this study make contributions to literature on news knowledge and civic engagement and help lay a foundation for future theory building in news consumption. The findings also have implications for news producers and the news audience, both of whom are still learning how to participate in the mobile news landscape. Finally, this study suggests that participating in a democracy during the mobile age, now in its earliest years, might be different in some ways than in earlier eras, which might affect citizens and policy makers alike. This chapter provides a summary of findings followed by a discussion of specific findings, including implications for literature and theory. This is followed by discussion of how this study informs mobile news producers and consumers and the practice of democracy in a mobile age.

Review of findings

This dissertation conducted two surveys of American adults. Study 1 answered six research questions and tested five hypotheses, including the Mobile News Dependency Model; Study 2 answered four research questions and tested six hypotheses. Altogether, this dissertation answered 10 research questions and tested 11 hypotheses. Of these

hypotheses, six were supported and five were not supported. Overall, the Mobile News Dependency Model is unsupported, though support can be found for specific links in the model. The model included three links — from mobile news use to shorter sessions (or news snacking); from shorter news sessions (or snacking) to news knowledge; and from news knowledge to civic engagement. Tested individually, the first and last links hold true, as mobile news use is associated with news snacking, and news knowledge is associated with civic engagement. The overall relationship between mobile news use and civic engagement, however, appears to take a different path than the one specified.

Study 2 updated and added clarity to the results of Study 1, but it did not essentially change any of the relationships found. That is, Study 2 confirmed the findings of Study 1. For this reason, the remainder of this summary considers results of both studies together and unifies the results from them both.

This dissertation found that Hispanics or Latinos and Asian Americans are more likely than other racial and ethnic groups to use smartphones for news and to rely on them as a primary news platform. Younger people are also more likely to use smartphones as their primary news platform. Other results relating to demographics have been found before and are confirmed in this study, such as that socioeconomic status is related to knowledge and civic engagement (Verba & Nie, 1972; Verba et al., 1995; Zukin et al., 2006).

News consumption behavior on smartphones is different from consumption behavior on other platforms. This had been suggested in earlier qualitative studies (Costera Meijer, 2007; Gutknecht & Dörflinger, 2009), but is confirmed here empirically. Smartphone news sessions are shorter and spread throughout the day, meaning smartphone users consume news in bits and pieces, checking in with the news on

smartphones. Smartphone news users are likely to habitually snack on the news, consuming it in short bursts several times a day.

The behavior appears not to affect their levels of news knowledge. Smartphone news users do not perform any worse on a test of news knowledge than those who primarily get news on other platforms. This result was unexpected given existing theory (Eveland, Jr., 2001; Lang, 2000) and earlier empirical tests of news snacking or grazing (S. E. Bennett et al., 2008; Morris & Forgette, 2007). Many have questioned whether snacking on the news might be detrimental for news knowledge acquisition (M. Brown, 2005; Bucy et al., 2014; MacArthur, 1993; Sauvageau, 2012), but it appears that this type of news consumption on smartphones does not have a negative effect on learning from news. Paying attention to the news, on the other hand, is strongly negatively correlated with snacking, meaning those who snack are less likely to pay attention to the news. Attention also accounts for a large part of news knowledge, meaning that paying attention to the news is likely more important than how much time one spends on news. While news snacking is negatively correlated with news knowledge in a bi-variate correlation, that association disappears once news attention is added as a control. This suggests that attention to the news is actually the important predictor of knowledge, not whether a person consumes news in short bits or longer sessions.

But when it comes to civic engagement, smartphone news use does have an effect — a positive one. Those whose smartphones were their primary means of getting news were likely to score higher on a scale of civic engagement. Again, this effect is independent of whatever effect (or lack of effect) smartphone use has on knowledge. This result held true across both surveys and in the presence of several controls. Smartphone news use appears to be good for participation in public life, as was found in earlier studies of cellular phones (S. W. Campbell & Kwak, 2010a, 2010b, 2011b).

Finally, results confirm that, even with the surge in smartphone use, we live in a multiplatform society. Smartphones have don't appear to have displaced other media use. While mobile is the dominant platform in some situations (specifically social media and news use), it is almost never used in a vacuum. Almost everyone who gets news on a smartphone also gets news on other platforms, and more than 80% of smartphone news users get news on four or more platforms. So while mobile browsers and apps are accounting for larger and larger shares of web traffic to news sites, they are far from being the dominant medium on which people get news.

Contributions to the literature

The results presented here constitute an important replication of findings in civic engagement literature. Specifically, this study confirms that socioeconomic status, age and education are still predictors of civic engagement in today's mobile landscape. Results also suggest that the relationship between gender and civic engagement needs to be further investigated in the mobile landscape. This study also adds specificity to our understanding of how knowledge and civic engagement are related. While news knowledge does have a positive effect on civic engagement, its contribution appears to be weaker than that of other political variables. Knowledge of recent public affairs therefore is a predictor of civic engagement, but other areas of civic literacy may be even more important.

This study appears to support the findings of studies of mobile phones conducted before smartphones were popular. Specifically, this study suggests that smartphone use is positively associated with civic engagement, a relationship that has been suggested before (S. W. Campbell & Kwak, 2010a). This study proposed a new connection between smartphones and civic engagement, passing through news snacking and knowledge, but

this appears not to be the way smartphones and civic engagement are connected. This opens multiple opportunities for further research.

This study contributes to our understanding of how people learn from news media by ruling out the effects of time (all other things being equal) on knowledge acquisition. Previous studies (Eveland, Jr. & Dunwoody, 2002; Eveland, Jr., 2001) had identified structural factors and internal motivations as key components of learning from the news. Both these studies and the Limited Capacity Model (Lang, 2000) make reference to a role of time or resources in information processing, but no such role was found in this study.

This study contributes to the literature on the news audience by identifying a new and rapidly changing demographic profile of news users. The news audience is becoming more diverse, which will have many implications for news producers and the kinds of content they offer. Of course it also has implications for advertisers who are trying to reach the news audience. This study also shows that people's reading habits are different on different platforms. In other words, audience habits change from platform to platform in terms of time spent, and there may be other ways in which habits are tied to different platforms. Finally, the news audience relies on multiple platforms in order to get news. It is unhelpful to refer to individuals as "internet users" or "smartphone users" as if they are restricted to a single platform. Rather, studies of the news audience must consider that individuals get media from a broad array of devices and media.

Contributions to theory

This dissertation set out to build theory relating to news consumption, news knowledge and civic engagement. The Mobile News Dependency Model was developed based on previous research on learning from news and on mobile phone use. Both the Cognitive Mediation Model (Eveland, Jr., Shah, & Kwak, 2003; Eveland, Jr., 2001) and

the Limited Capacity Model (Lang, 2000) offer explanations for the cognitive processes at work when learning from the news. These models of learning from the news presume that learning would improve with additional time spent with the content, either for processing and storage (LCM) or thinking further about it in elaboration (CMM). Thus it was proposed in the Mobile News Dependency Model that news session length would be positively related to news knowledge. The results presented here suggest that time spent with the news is not an important factor in predicting learning from the news. While cognitive processes and elaboration both consume time as a resource that must be spent in order to learn from the news, the length of time spent with the news itself is not a good predictor of learning from the news. Particularly hard to explain is the result in Study 1 that average session length is negatively related to news knowledge. In other words, those who spend shorter times with news do better on news knowledge tests. It's possible that consuming massive amounts of news overloads the brain and diminishes the likelihood that any one bit of information will be retained. This might make particular answers on a news knowledge quiz harder to retrieve from memory. In Study 2, there is no significant relationship between news snacking and news knowledge, and so the relationship between these variables remains unclear. Perhaps it is the case that individual minds might operate at different speeds, with some individuals being more or less efficient in terms of processing, storage or elaboration. That is, some minds might require less time to make the necessary connections between old and new information that are necessary for storing and recalling the new information. Whatever the reason, the failure of the link between session length and news knowledge in the Mobile News Dependency Model suggests more research is needed to determine if the variable time should be ruled out in developing theories related to learning from news.

This study also lays the foundation for developing additional theory relating smartphone use, as the defining media choice of the Millennial Generation, to patterns of civic engagement. Results suggest that a connection between smartphone news use and civic engagement does exist, but it does not depend on learning from the news. It is also not likely to depend upon different modes of news consumption, given the broad measures of consumption employed in this study to differentiate among platforms and habits. Whatever baseline connections existed between platforms and knowledge or time and knowledge, those relationships disappeared in the presence of controls. Still, the widespread use of smartphones is less than a decade old. Those looking to build theory related to smartphone news use and civic engagement should consider revisiting these variables in the future or identifying additional relevant variables to test.

Discussion of main variables

MOBILE NEWS USERS

The demographic profile of mobile news users is different from those who primarily use other platforms. If the prototypical newspaper user is older, educated and white (Malthouse & Calder, 2006), the prototypical smartphone news user is younger and Hispanic or Asian-American. It is interesting to note that Asian-Americans and Hispanics have been the two fastest-growing ethnic groups in the United States for decades, growing at rates of more than 2% annually. Pew finds that Hispanic growth is fueled largely by births in the U.S., and Asian growth is fueled largely by immigration (A. Brown, 2014). These fast-growing segments of the population are more likely to use smartphones than other demographic groups, though it is unclear whether the growth and smartphone use are related. Future studies might examine explanations for this co-

occurrence of population growth and smartphone use. Whatever the reason, it appears likely that mobile news consumption is being driven by a wave of younger, Hispanic and Asian-American users, and that wave appears likely to increase as these segments of the population continue to grow.

Previous research in civic engagement — and indeed, in much of social science — has focused on the differences between whites and racial and ethnic minorities. The rationale for this approach might be that privilege, whether socioeconomic status or other societal structures separating the races, is often associated with involvement in public life. Thus it is frequently the case, including in some analyses in this study, that all minorities are grouped together in a non-white category when analyzing data. The trends seen in this study show that there are substantial differences among racial and ethnic groups when considering the use of mobile devices, and so researchers must be careful to study racial and ethnic groups separately. In this way it will be possible to contribute to a greater understanding of how race and ethnicity contribute to adoption of a new technology, news use and life in our society.

The fact that younger people have adopted a new technology more eagerly than old people is no surprise (Rogers, 2010); what's interesting is that young people are using the new platform to get news. While this study did not rank news against other uses of smartphones, it's clear that substantial portions of young people in both studies used their smartphones to check the news. Younger adults have historically had lower levels of news use and lower levels of involvement in public affairs (W. L. Bennett et al., 2009; Zukin et al., 2006), but the smartphone may be one way to reach them. Those looking to engage youth with news and civic life may be able to use mobile platforms to reach them (Poindexter, 2012).

Often observers lament that youth are out of touch or disengaged, though there are some who suggest that youth are not disengaged but rather differently engaged (Zukin et al., 2006). This study supports this view, suggesting that youth do keep in touch with the rest of society, even if they do it by checking in on their smartphones. There are certainly quantitative differences in the frequency and length of these checkins compared to older generations' use of other media, and there may also be qualitative differences. But if these qualitative differences do exist, they are not in terms of news knowledge acquisition. Thus it is important to examine the habits of today's youth through a new lens, rather than to compare them to the standards of previous generations and, because they behave differently, declare them lacking.

SNACKING ON THE NEWS

People who get news on their smartphones do so in short bursts, multiple times per day. This practice of "snacking" on the news, or "grazing" or "checking in," has been observed or suspected by other researchers studying other platforms (S. E. Bennett et al., 2008; Costera Meijer, 2007; Gutknecht & Dörflinger, 2009; Hardy & Jamieson, 2011; Morris & Forgette, 2007). But this study is the first to conclusively link the practice with news use on smartphones. This study also shows that, even if news snacking does occur on other platforms, it occurs to a far greater extent on smartphones. From the earliest days of newspapers in the United States until only a few decades ago, the only available schedule on which to receive news was daily. Television then began offering multiple news programs during the day, though there have been substantive differences between morning news shows and evening news programs. The rise of 24-hour news accompanied the spread of cable television, but even though news was available at any time, viewers could not choose what news to consume. The internet offered this flexibility, and the

ability to search archived news content, such that news could be consumed on whatever schedule a person liked. Even so, the assumption was that immediacy would be preferred (this is the news, after all) and so the news presentation cycle was shortened to the moment it's available. Smartphones incorporate all these developments and add the capability to access and consume news from anywhere, allowing users control over not only time but also space.

It is clear that people are taking advantage of this control to develop different consumption behaviors on mobile devices than exist on other platforms. What that means remains an open question. Does it matter whether people consume news in long sessions or in shorter ones? It likely makes a difference to news producers, discussed later in this chapter, who must make adjustments to accommodate readers' consumption choices. And it certainly makes a difference to consumers, who are now offered even more control over what they consume, when they consume it, and where they consume it. Prior (2005) contends that increased choice or control leads people to exercise their preferences against consuming news, but news remains an important use of smartphones (American Press Institute, 2015), perhaps because of the immediacy with which it can be delivered. Indeed, these days, smartphone users need not seek news at all. It comes to them, buzzing their phone with an alert in the same way they receive text messages from friends. Allowing such alerts is a choice made once, which is much easier to do than forming a habit of news consumption.

NEWS KNOWLEDGE

One thing that doesn't suffer from this new consumption pattern is learning from the news. It is logical that spending less time with the news, or consuming it helter skelter throughout the day, would lead to less learning. Getting news on a smartphone is brief,

often unplanned, and therefore unfocused and prone to distraction. All this should be detrimental to learning from the news, and yet the results of this study suggest that news snacking and smartphone news do not have negative consequences for news knowledge. This is an interesting finding considering that this study tested *news* knowledge, a more narrow definition of knowledge of public affairs as compared to *political* knowledge. The information respondents were tested on could be found only in the news, and they therefore had to have come across it in while consuming news in order to answer the question correctly. (That is, they could not draw upon civics lessons from school to answer questions about the political structure of the country, questions about which are commonly included in measures of political knowledge.) This study therefore provided a direct test of how well information passes from news outlets to the minds of consumers, and found that the way news is consumed (in shorter or longer sessions) has no impact on how well it is learned.

One possible explanation for this is that what really matters for learning is attention (Ksiazek, Malthouse, & Webster, 2010). Those who are attentive and interested in the news and in politics, one of the main subjects of hard news coverage, should learn more from the news, and this appears to be the case. Once news interest and political control variables are added, any association between snacking and knowledge disappears. (Conversely, removing the control variables in block 2 from the regression models in Table 7.16 show that news snacking is significantly negatively related to news knowledge and civic engagement.) It is logical that those who are less interested in news and politics are more likely to snack on it rather than consuming large portions. And given what we know about the role of motivations in learning (Eveland, Jr., 2001; Lang, 2000), those who are interested in the news are much more likely to learn from it. It was

expected that news snacking might have an effect above and beyond the effects of interest or attention to news and politics, but results show that's not the case.

MULTIPLATFORM NEWS CONSUMPTION

One reason why different consumption patterns on mobile devices might not have major consequences for news consumption and learning from news overall is that we live in a multiplatform world. Perhaps if those who consume news on smartphones got their news exclusively through the mobile devices, there would be measurable differences in knowledge levels. But the fact is that, among the roughly 2,600 respondents surveyed across the two studies, only two people got news exclusively from smartphones. For some, the smartphone was their primary means of getting news, but in almost all cases, this smartphone news use was supplemented by news on other platforms. Those who have grown up using the Internet have been called digital natives, and the term may be apt — the most common platform paired with smartphones for getting news is the computer. But smartphones were paired with all other platforms, and in fact a large portion of smartphone users also got news on three or four *other* platforms as well.

Earlier studies on news consumption have focused on people's preferred platforms, separating "print users" from "television users" for instance, or asking questions about "internet users," as if these users were monogamous in their media consumption. That may have been true in the past, for some people, but it is certainly not the case anymore. More than 80% of Americans get news on 3 or more platforms each week. People are spreading their attention across the day and across different media, a trend advertisers and content producers alike have noted with dismay (Starr, 2012). Others have called this phenomenon audience fragmentation and have linked it with attention deficits to individual platforms (Webster, 2011). But from the consumer's

perspective, this is the greatest time in history to be a news consumer. There is a wide array of options, each with distinct strengths and weaknesses, which can supplement each other to produce a varied, robust news diet.

So if people are snacking on the news when getting it from smartphones, they are likely getting meals elsewhere. This thought recalls the conception of internet news as the "ramen noodles" of news offerings (Chyi & Yang, 2009); that is, a commodity that is prized more for its convenience and price than for its quality. Rather than subsisting on news snacks alone, people appear to be enjoying them as part of a more balanced news diet. In the cases where people are habitual snackers —constantly nibbling around the edges of news rather than digging in, no matter the platform — the problem runs much deeper than the choice of platform. That is, people who constantly snack on news do so because of a lack of interest in the news, not because they choose to rely on a platform that encourages snacking. This means that those wanting to study news consumption habits, especially snacking or grazing, should turn their attention from patterns of time and place to attitudes toward news, which is likely to be the root of the problem. This is similar to the "consumer-centric" view of news consumption advocated by other researchers (Ksiazek et al., 2010).

This view of multiplatform consumption gives consumers more credit than they usually receive. These are the days of the active audience, not just in terms of interacting with the news in terms of choice, but in terms of being in constant contact with the news throughout the day. News is woven into the patterns of daily life, part of an information-acquiring culture, rather than being a separate activity ("Now, I'm going to go get some news"). Consumers appear eager to take advantage of the wide array of choices available to them, and to have different modes of use for different platforms. Even if news is encountered incidentally or accidentally while doing something else, it is still

encountered. While other studies have suggested that there is some benefit to incidental exposure by itself (Tewksbury et al., 2001), this study suggests that incidental exposure — or news snacking, or grazing, or any kind of news consumption behavior, for that matter — does not occur in a vacuum. People mix and match news offerings in a way that is comfortable and convenient for them, pulling news from multiple platforms and media.

CIVIC ENGAGEMENT

There has been evidence for some time that the ways in which people engage in public life are expanding, if not changing altogether (Dahlgren, 2009; Dalton, 2008; Zukin et al., 2006). And yet, it is clear that the circumstances that lead one toward civic engagement have not changed much over the course of the last 50 years. Older people, whites, those with higher incomes, and those with more education are all still more likely to participate in civic life. A sense that one can influence the political system is a strong predictor of engagement, as is party identification, interest and discussing public affairs with others. One bit of the demographic profile was inconsistent across the datasets: gender. In Study 1, males were slightly more likely to be civically engaged, and in Study 2, females were slightly more likely to be civically engaged. The relationship in Study 1, between being male and civic engagement, disappeared in the presence of other controls (including news interest), but the relationship between being female and being civically engaged held in the presence of controls in Study 2. It is possible that this finding is an artifact of the sample for Study 2 that, although not skewed in gender, is skewed in other demographic variables related to civic engagement. This data does not show conclusively whether there has been a shift away from older models of civic engagement showing males to have an advantage, but it at least opens the question for further inquiry. Has digital technology provided more opportunities for women to participate in public life?

Or have there been other cultural shifts away from systems in which men are privileged? These data suggest that the role of gender in predicting a person's propensity for civic engagement may have changed.

But perhaps the most significant finding related to civic engagement is that people who primarily get news from smartphones are slightly more likely that other people to be civically engaged, all other things being equal. This result is supported by data in both studies, conducted a year apart and on different samples of U.S. adults. The reason for this higher level of engagement among smartphone news users is not an increased level of information or knowledge. In other words, it is unlikely that the resources of knowledge one gains from mobile news are any different from the knowledge one might gain on other platforms. So what is it that causes smartphone news users to have higher levels of civic engagement?

The first explanation, is that both smartphone news use and civic engagement are both caused by a third variable. This variable is unlikely to be related to socioeconomic status, as we have seen that minority groups are more likely than other groups to use smartphones and the relationship between smartphone ownership and income is weak, at best. This third variable is possibly deep-seated attitudes about community, information and involvement. That is, people who feel a sense of civic duty might be likely to want the immediate access to information that a smartphone provides as they seek to participate in public life. If such an attitude or characteristic predicting both smartphone use and civic engagement exists, it may be difficult to identify and to separate from other variables such as political interest, information seeking, and efficacy. The sense of civic duty has already been identified as a variable predicting civic engagement, and this variable has been adapted to talk about a sense of duty to keep informed (M. McCombs

& Poindexter, 1983; Poindexter & McCombs, 2001). These variables may be the most likely places to begin the search.

Another, perhaps more likely, possibility is that something else (other than knowledge) happens as a result of smartphone news use that also predicts civic engagement. Candidates for such an intervening variable include discussion, social capital, and political expression. Discussion of public affairs with others is a natural fit with smartphones, given that these devices offer a wide range of methods to communicate with other people. A series of studies of mobile phones (before the advent of smartphones) suggests that people who use mobile phones are better able to stay in touch with others in their network (S. W. Campbell & Kwak, 2010a, 2010b), thereby strengthening connections. This ease of communication and network maintenance enabled them to have more resources to draw on in participating in civic life, making them more likely to be engaged. This is a similar argument to the one that might be made for social capital, which is that people who have smartphones, with all the interpersonal communication capabilities they offer, are better able to build up social capital. This social capital, then, gives them both a desire to participate in public life as they think of others in their community and the resources to do so. Indeed, one of the most interesting facets of smartphones is that they combine mass communication and interpersonal communication in ways that other platforms cannot.

It is also possible that expression, particularly expression about political issues, is enabled through smartphone use. Some work has been done showing that social media act as an arena for people to express themselves in multiple ways, some of them political (Gil de Zúñiga et al., 2014; Ostman, 2012). Social media are one of the main uses of smartphones, and the two have become so well integrated that they are almost indistinguishable. Posting to social media sites, sending images and links to friends via

text, and other means of sharing and expression are now built into the operating systems of most mobile phones, allowing such expression to occur from within almost any application. If sharing and expression are main uses of smartphones, it follows that more opportunities for political expression could lead to more civic engagement.

Producing and consuming mobile news

These findings have many implications for the news industry, both for those who produce news and those who consume it. Media producers are acutely aware of the growing importance of mobile devices, but the multiplatform nature of today's news consumption landscape is not something that appears to be at the forefront of industry leaders' minds. Media executives frequently speak of platforms as being in competition with one another, rather than complementing each other as appears to be the case. Suppose a consumer wishes to follow local news in order to stay informed about public affairs in the area where she lives. She might subscribe to the local paper, or read it online, or read it in a mobile app — or she might do all three, and also watch the local news broadcast. This sounds like a lot of news consumption, but consider that rare is the person who, interested or not, gets news less than a few days a week. News is all around us, woven into and around other daily activities.

So if news consumers encounter news at least a few days a week on at least a few different platforms, how should media companies position their offerings across different media? Again, newsroom leaders often speak of their "print audience" and their "mobile audience" as if they are different things. For parts of the audience that may be true, but it's likely there is substantial crossover. Thus it is possible to engage a single audience member across multiple platforms by differentiating the content offered on each platform. This should be done by playing to the strengths of each platform rather than simply

reformatting text for different size presentations. In other words, knowing that people use multiple platforms for news, it may be possible to build customer loyalty by connecting with customers on multiple platforms and considering that a single person might encounter your content in multiple media. For many media companies, this is already possible, as consolidation has brought television, newspapers, and digital properties under one roof, as in the case of Gannett and Cox. There are some rules that limit a company's holdings in a single market, but even individual news organizations often produce content on multiple platforms, for instance in print, online and on mobile devices. Thus it seems at least possible to consider an outlet's audience as stretching across media and platforms and to produce content for each of them. Making it worthwhile for audience members to get the news on all platforms could potentially increase the audience.

News producers should also consider the demographics of the mobile news audience. Young people have long been a sought-after segment of the population, both for content producers and advertisers. These young people are on mobile devices, and content producers and advertisers would do well to meet them there. A good example of how to do this is what some news organizations are doing on Snapchat, a social image and video sharing app. Young people use the app to stay in touch with friends, but the app also includes a section called "Discover" which displays offerings from media companies. These are formatted in the style of Snapchat and could fit alongside the images and videos users receive from their friends (as opposed to looking like the news company's website). They provide a range of news and other content with the option to read more on the company's site. But the key here is that the news offerings on Snapchat had to be built from the ground up. The subject matter of the story, and in some cases much of the text, may be similar to what is posted online, but it's presented in a way that

fits how people are already using their phones. News companies don't need to be Snapchat or Facebook, but they do need to be on Facebook and take advantage of the media habits people have already formed rather than trying to change them.

Diversity in news coverage has long been a point of concern among media observers and critics. The news tends to focus on elites, and minority groups are not covered unless they are part of a problem (that is, unless elite attention is already focused on them) (Keever, Martindale, & Weston, 1997; Poindexter, Smith, & Heider, 2003). Progress has been made, and newsrooms and news offerings are now more diverse than they have been in the past, but news companies will have to make much more progress in order to stay relevant in the mobile future. Of all racial and ethnic groups, whites are the least likely to be mobile news users. News companies would do well to learn what news is of interest among Asian American communities and Hispanic communities, and to work to reflect those communities in the news content they offer. There is enormous opportunity for news companies to build loyal consumers among a broad range of racial and ethnic groups on smartphones. It will be important to conduct market research and learn how to serve these communities' needs with news that includes them and is relevant and engaging to them.

This engaging and relevant news must also fit consumers' consumption schedules. Many have lamented a perceived decrease in consumer attention spans, suggesting that people now care less about the news because they spend less time with it online and even less on smartphones. The average time span people spent on mobile news before moving on to something else was 11 minutes. The question to ask, then, is how news companies can best make use of those 11 minutes with the smartphone. Mobile news offerings should be able to be consumed in a short session. Yes, this sacrifices some detail and nuance that is extremely important in the news, but this study suggests that

people are getting that information elsewhere. Even if they encounter only headlines on their smartphone as they browse media offerings to start the day, these results suggest that consumers go back and get longer stories on different platforms at other points in the day. Alternatively, smartphone news users might consume only one story in a session, spending all 11 minutes on it, and then come back to read another one at another point in the day (because smartphone news is accessed multiple times per day). Thus longer news stories may also be offered if the consumer desires them. A good example of combining these two approaches is the NYT Now app, which gives headlines and bullet points on the front page of the app. These can be consumed quickly in order to see what the news is today. Consumers wishing to know more about a particular story can then click the headline to view the Times' full text article.

Finally, it has been suggested that more interactive or entertaining presentations of the news in multiple media, as is possible online and on smartphones, actually dumbs down the news. The findings presented here suggest that knowledge does not suffer even when relying on one platform more than others. If people have a duty to be informed, journalists often see it as their responsibility to inform them. That means telling people what they need to know and not just what they want to know — feeding them vegetables along with their dessert. Again, some of these concerns have been tied to platforms, with observers lamenting that only unusual crimes or salacious sex stories get hits online while the story at the top of the newspaper is about the legislature. And yet it appears that people manage to consume a wide range of news material and to stay informed about a broad range of subjects including public policy, national security, education, and health care. Tying concerns about content quality to specific platforms appears to be misguided. While each might have strengths and weaknesses, the fact that none of them is consumed in isolation makes arguments about platform superiority obsolete. Thus when aiming to

provide what people want and what they need, news producers should look at their range of offerings across platforms, not within them.

Democracy in a mobile age

The societal and cultural changes at work in today's world go far beyond the adoption and use of mobile devices. Smartphones are just one part of movements toward globalization, collective action, and equality and also play roles in security, privacy, individuality, and freedom. Scholars have suggested that the "right" way to consider any new technology is within the context of the society and culture that develops it. The technology may enable certain behaviors that were not possible before, but people likely had always wanted to behave that way and developed the technology to allow them to act on those desires. This section attempts to place mobile phones within the context of contemporary American culture and society in an effort to understand how democracy and civic engagement are related to mobile phone use. This task is complicated by the fact that we are at the outset of the mobile age, with smartphones being less than a decade old and having been widely adopted for about half that. Thus what we see now, from this vantage point, is the beginning of change, not its complete adoption.

Democracy has always required collaboration among individuals. This is primarily true among elected officials, who must work together to reach compromises and unify to enact policies. These officials must also communicate with their constituents and with others around the world in a globalized society. Democracy is about reaching consensus or at least identifying a majority, and so building coalitions and influencing public opinion are paramount. Smartphones can aid in these efforts as people consume, share and communicate with one another in increasingly well-maintained social and organizational networks. Even getting elected in the first place has changed in the mobile

age. People can now follow election campaigns by the minute, with live text, image and video updates from the campaign trail. This has caused some to lament that we pay attention only to the gaffe of the day rather than discussing substantive issues of policy or character.

But even if attention is fleeting in some instances, it must be good to have more of it. Can we really argue that keeping frequent tabs on election campaigns is a bad thing, when usually the main concern is that broad segments of the population are entirely disengaged from politics? The more opportunities people have to encounter and interact with the democratic process and public affairs, the better the chances that they will. And as we know, previous engagement is one of the strongest predictors of future engagement. Thus, this study sees the mobile age as a boon to democracy. Mobile devices don't water it down or drown it out; they bring opportunities for democracy to more people who might otherwise never encounter it.

It is fascinating that there is a connection between smartphone news use and civic engagement. As discussed earlier, it's possible that some other feature or use of smartphones is associated with civic engagement, and news comes along for the ride. If that's so, it will be important to discover what is causing the connection to civic engagement to see whether similar mechanisms might be applied to other aspects of public life. If smartphones are a product of the culture and society that created and embraced them, then democracy in the mobile age is marked by the broadening, not weakening of civic life. Mobile devices bring more segments of the population into the conversation about public affairs. They provide more opportunities for collaboration among individuals and communication to and from public officials. And perhaps most of all, they allow people to participate in public life in ways that were not possible before, potentially broadening the definition of what it means to be civically engaged.

Limitations

This study experienced several limitations, many related to measurement and analysis. In Study 1, smartphones and tablets were grouped together in measures of "mobile devices," when the fact is that usage patterns on the two devices can be very different. Still, it is becoming more and more difficult to draw a line using just names, as devices such as phablets blur the boundaries between smartphones and tablets. But for this reason, the two devices were separated in Study 2. Also in Study 1, the formulas used to calculate mobile news dependency and average session length both include a measure of session length in them, making any comparison of the two variables problematic. Given the results of Study 2, this shortcoming proved not to change the fundamental nature of relationships among the variables of interest. That is, even measuring mobile news use and session length (or snacking) in a different way did not change the viability of the Mobile News Dependency Model. In future studies it would be better to take a more holistic approach to media consumption rather than focusing on specific platforms because so many people use them in concert with each other. Study 2 was limited in its sampling method, and it can be recommended that researchers wishing to survey the general public use other survey methods that can return a sample more closely resembling the general population.

Overall, this study was limited by its overconfidence in news consumption habits as a predictor of news knowledge and civic engagement. While it is true that both exposure to news is necessary in order to acquire news knowledge, it is not a sufficient condition for news knowledge gains. Thus exposure related-measures lose their connection to news knowledge once attention is taken into account. Future studies of

news consumption should focus on attention-related measures of consumption rather than exposure-related measures.

Recommendations for future research

Future studies of news consumption, knowledge and civic engagement can build on this study in a number of ways. First is the confirmation of previous research (Wonneberger, Schoenbach, & Van Meurs, 2013) that measuring news consumption more finely than days per week, while informative when discussing differing news habits, does not add additional explanatory power. In other words, while it's important to focus measurement on a specific behavior, the measurement must capture a large enough portion of that behavior that effects can be detected. To use an example from this dissertation, "days per week getting news" strikes this balance much better than "length of last smartphone news session." In cases where the more narrow measure is suspected to have an effect of its own, independent of the larger measure (as was the case with session length in this dissertation), it is important to focus respondents with specific instructions. Study 1 was limited by attempting to dive too deeply into individuals' news consumption habits without focusing them on a particular instance. The refined measurements in Study 2 asked users to think about what they did yesterday, and then asking them about the last time they used their smartphone yesterday, which produced more reliable results in terms of individual session lengths. The downside is that this greatly increased the series of questions that had to be asked so that respondents could focus on a narrow instance of media use. This almost must be considered so that surveys are not too long. Of course, other methods of measuring media use (such as observation, media diaries, or, in the case of electronic media, tracking software) should also be considered. Additionally, measures of exposure could be replaced with measures of

attention to news or interest in news. These drive exposure and are more predictive of knowledge gains.

Speaking of additional measures, it will be important to conduct qualitative research, especially focus groups, observation, and interviews, in order to learn how people are consuming news on mobile phones. The data presented here suggest that people mix and match various platforms when consuming news and may have different or specialized uses for each. While they snack on mobile devices, for instance, they get meals elsewhere. Focus groups, observation and interviews could help more clearly define some of the patterns prevalent in mobile news consumption and thereby improve survey measures.

Future studies must account for differences among races and ethnicities in news consumption both in measurements and in analysis. Use of this categorical variable can be tricky in some analysis techniques, and this fact must be considered when formulating research questions and hypotheses. This project focused on mobile news consumption specifically, across races, but a deeper dive into race, ethnicity and smartphone use could yield important findings.

It will be important for future studies to consider sampling techniques when looking to take measurements of the general population. Neither of the two techniques employed here can claim to offer true population estimates because neither is a random sample. True population estimates were not needed for testing the theories put forth in this dissertation, so non-random samples were used. Even so, some online sampling methods can offer advantages over others. Study 1 used a managed panel of opt-in respondents selected to match demographics of the United States as found by the Census. Indeed, the demographic measures taken in this study very closely matched those of the general U.S. population. We would therefore expect comparisons involving age, race and

education to more closely match reality in Study 1. This is in contrast to Study 2, which used a convenience sample of self-selecting respondents opting to take the survey for a small fee on Amazon's mTurk service. This method raises concerns about data integrity, including the possibility of spamming or misrepresenting oneself. Amazon has instituted an approval rating system so that "workers," or those who take the surveys, may be compensated or selected for certain, higher-paying tasks based on how reliably they have performed previous tasks. Many respondents to Study 2 were quite concerned with their approval rating and sent messages to the researcher indicating problems with the survey or affirming their conscientious participation. Indeed, cleaning the data for Study 2 was no more work than cleaning other datasets, and included only a few results that had to be removed for improper responses. This is also likely due to the fact that the study included two attention questions, which could be included in any survey, regardless of the sample. The attention questions seemed to work properly, excluding from the final dataset those who are not reading carefully. It is recommended that future surveys include attention check questions.

Perhaps the most important suggestion for future research comes out of one of this study's limitations: that the Mobile News Dependency Model it proposes doesn't work as theorized. This opens the door for additional research in order to find the link between smartphone news use and civic engagement. As mentioned earlier, there is clearly a connection between the two variables, but given the relatively weak strength of the connection it is also likely there is a third variable suppressing the relationship. Discovering and measuring what this variable is should be the focus of future studies in this area. Social capital and sharing the news would be one likely area to look. Another important question to ask would be, what elements of civic engagement are made easier with smartphones? Identifying these elements and separating them from a broader

measure of civic engagement could clarify connections between mobile news use and civic engagement. Finally, motivations for getting news, motivations for using smartphones, and motivations for civic engagement may all play a role in determining what happens along that causal chain. Looking at these motivations specifically is a recommendation for future research.

Future studies should also consider it inappropriate to talk about "smartphone users" (or users of any other platform, for that matter) as if the use of that platform occurs in isolation. While there may be differences between those who use smartphones and those who don't, the fact is that media companies spread their offerings across multiple platforms, and people spread their attention across multiple platforms. As such, future research should work to find what combinations of platforms produce different results rather than working to isolate individual platforms.

Conclusion

This dissertation set out to test the author's theory about the relationship between mobile news consumption, news knowledge, and civic engagement. The question, so eloquently put by Bucy et al. (2014), is "whether the sampling implied by such news grazing has the capacity to actually inform, as opposed to merely cultivating a superficial sense of knowing." People do indeed snack on the news, and particularly so when using smartphones. But it appears that snacking on the news is independent of news knowledge when controlling for interest and attention. This is not to say that grazing on the news, as Bucy et al. call it, actually informs people, but that even where grazing does occur, it apparently occurs in concert with other forms of news consumption, and that combination actually informs. Thus, this study provides a fuller picture of the relationship between news consumption habits and news knowledge, suggesting that the means and the

methods of news consumption are less important to acquiring knowledge than the motivations to do so (Chyi & Lee, 2013).

The topic of mobile devices was taken up with some skepticism about their capacity to contribute to knowledge of public affairs and participation in public life. The brief, inattentive checkins with news and public affairs news were expected to leave people poorly prepared for participation. On the contrary, smartphones appear to make a positive contribution to public life, working together with other platforms and likely other uses of smartphones themselves.

Thus we have reason to be optimistic about democracy in a mobile age. Participation has changed, and the ways in which people prepare to participate have changed. But new, different ways of preparing and participating might be as good as old ones, and perhaps even better. Segments of society often seen as disengaged from public life for one reason or another are among the most frequent users of mobile phones, meaning opportunities exist for making our democracy more inclusive. Mobile phones are not the first media and communication technology to change and contribute to public life, and they won't be the last, but they are, for now, the latest. The findings presented here lay a foundation for additional study of smartphones' contributions to public life and civic engagement in a mobile landscape.

APPENDICES

Appendix 1: Study 1 Questionnaire

The next questions want to know more about your use of print, online, and broadcast news. First, you'll be asked about days per week followed by number of times per day that you get news in print, online, on TV and radio, and a smartphone or tablet.

4. How many days per week, on average, do you get news in print?
   1. 0 days ----------→(Skip to Q_____.)
   2. 1 day
   3. 2 days
   4. 3 days
   5. 4 days
   6. 5 days
   7. 6 days
   8. 7 days

5. How many times per day, on average, do you get news in print?
_____

6. How many days per week, on average, do you get news online?
   1. 0 days ----------→(Skip to Q_____.)
   2. 1 day
   3. 2 days
   4. 3 days
   5. 4 days
   6. 5 days
   7. 6 days
   8. 7 days

7. How many times per day, on average, do you get news online?
_____

8. How many days per week, on average, do you get news on television?
   1. 0 days ----------→(Skip to Q_____.)
   2. 1 day
   3. 2 days
   4. 3 days
   5. 4 days
   6. 5 days
   7. 6 days
   8. 7 days

9. How many <u>times per day</u>, on average do you get news on television?

_____

10. How many <u>days per week</u>, on average, do you get news on radio?

1. 0 days ----------→(Skip to Q_____.)
2. 1 day
3. 2 days
4. 3 days
5. 4 days
6. 5 days
7. 6 days
8. 7 days

11.How many <u>times per day</u>, on average do you get news on radio?

_____

12. How many <u>days per week</u>, on average, do you get news on a smartphone or tablet?

1. 0 days ----------→(Skip to Q_____.)
2. 1 day
3. 2 days
4. 3 days
5. 4 days
6. 5 days
7. 6 days
8. 7 days

13.How many <u>times per day</u>, on average do you get news on your smartphone or tablet?

_____

14. Think of the last time you used each of the following media for news. About how long did you spend getting news that time?

	You don't use this medium	10 minutes or less	About 11-20 minutes	About 21-30 minutes	About 31-40 minutes	About 41-50 minutes	About 51-60 minutes	More than an hour
A. In print	0	1	2	3	4	5	6	7
B. Online on a laptop or desktop computer	0	1	2	3	4	5	6	7
C. On television	0	1	2	3	4	5	6	7
D. By radio	0	1	2	3	4	5	6	7
E. On a smartphone or tablet	0	1	2	3	4	5	6	7

These questions want to know how often you pay attention to various categories of news.

15. Do you often, sometimes, occasionally or never pay attention to the following categories of news:

	Often	Sometimes	Occasionally	Never
A. International News	1	2	3	4
B. National News	1	2	3	4
C. Local News	1	2	3	4
D. Celebrity & Entertainment News	1	2	3	4
E. Sports News	1	2	3	4
F. Weather News	1	2	3	4
G. Health News	1	2	3	4
H. Business News	1	2	3	4
I. Arts and Culture News	1	2	3	4
J. Politics	1	2	3	4
K. Government News	1	2	3	4
L. Natural Disaster News	1	2	3	4
M. Technology News	1	2	3	4
N. Election News	1	2	3	4
O. Accidents	1	2	3	4

P. Crime News	1	2	3	4
Q. Consumer News & Personal finance	1	2	3	4
R. Environment News	1	2	3	4
S. Breaking News	1	2	3	4
T. Opinions about the News	1	2	3	4

These questions are about mobile devices, including smartphones and tablet computers.

31. Which, if any, mobile devices do you own?

	Yes	No
1. Smartphone such as an iPhone or Samsung Galaxy	1	2
2. Tablet computer such as an iPad	1	2
3. Cellphone (excluding iPhone, Samsung or other Android smartphone)	1	2
4. E-reader	1	2

51. Did you vote in the 2012 U.S. Presidential Election?
1. Yes
2. No

54. In the past year, have you contacted an elected official in any way (via mail, phone, email, social media, etc.)?
1. Yes
2. No

55. In the past year, have you attended a public meeting or hearing to discuss community problems?
1. Yes
2. No

56. In the past year, have you signed or shared a petition (in person or online)?
1. Yes
2. No

57. In the past year, have you donated money to a campaign or political cause?
1. Yes
2. No

58. In the past year, have you donated money to or volunteered for a charity or community organization?
1. Yes
2. No

62. What year were you born?
_____

63. Are you?
1. Male
2. Female

64. What is the highest level of education that you've completed?
1. Some High School or Less
2. High School Degree
3. Some College or Technical School Degree
4. College Graduate
5. Some Graduate or Professional School
6. Masters, M.D. or Doctorate
7. Other _____

65. What is your race or ethnic group?
1. Caucasian or White
2. African American or Black
3. Hispanic or Latino
4. Asian American
5. Native American
6. Other _____

66. Are you of Hispanic or Latino origin, such as Latin American, Mexican, Puerto Rican or Cuban?
1. Yes
2. No

67. Approximately, what is your household income?
01. Under $20,000
02. $20-$29,000
03. $30-$39,000
04. $40-$49,000
05. $50-$59,000
06. $60-$69,000
07. $70-$79,000
08. $80-$89,000
09. $90-$99,000
10. $100,000 or more

Finally, I have a few more questions about some topics that have been in the news.

70. Which federal agency's documents did Edward Snowden leak to the news media?
    1. FBI
    2. CIA
    3. NSA
    4. The Federal Reserve

71. What does the term "Common Core" refer to?
    1. School curriculum standards for language and math
    2. The military's code of conduct
    3. A newly developed microprocessor
    4. Abdominal exercises

72. Did the Affordable Care Act meet, exceed, or fall short of its target number of enrollees?
    1. Met the target number
    2. Exceeded the target number
    3. Fell short of the target number

73. The U.S. unemployment rate increased during the 2008 recession. How does today's unemployment rate compare?
    1. It is lower than during the recession
    2. It is about the same as during the recession
    3. It is higher than during the recession

74. Of what country is Vladimir Putin president?
    1. Turkey
    2. Ukraine
    3. Russia
    4. Syria

Appendix 2: Study 2 Questionnaire

2015 National Survey of News Engagement and Public Attitudes about News

Thank you for agreeing to participate in this survey about news and engagement, which will take 10 to 15 minutes. Your responses will provide insight into how people engage with news and public life.

If you have questions, please feel free to contact me at logan.m@utexas.edu. You may now begin the questionnaire.

Logan Molyneux
School of Journalism
University of Texas at Austin

1. How many days in an average week do you get news?
    1. 1 day
    2. 2 days
    3. 3 days
    4. 4 days
    5. 5 days
    6. 6 days
    7. 7 days
    8. I don't usually get any news. (Skip to Q37)

2. Today people get news from a variety of devices and platforms. Which of the following devices or platforms do you use the most to get news? (Check all that apply)
    1. Laptop or desktop computer
    2. Smartphone such as iPhone or Android
    3. Tablet computer such as an iPad
    4. Television
    5. Radio
    6. Printed newspaper or magazine
    7. Other_____

2a. (Using checked items from Q2) On which device or platform do you get the most news?
_____

3. Some people briefly check in on news; others get news in longer sittings. In general, which best describes how you usually get news?
    1. You briefly check in on news
    2. You get news in longer sittings
    3. You get news in both longer sittings and brief check-ins
    4. Other

4. When you do get news, about how many minutes do you usually spend on news before moving on to something else?

_____

[To separate snackers from those who usually get news meals, *indicates reverse coding]
5. Below are some statements describing ways that people get news. How much do these descriptions apply to how you get news?

	Not at all		A little	Some A lot
A. You get news in bits and pieces throughout the day.	1	2	3	4
B. You get news in longer sittings of 20 minutes or more.*	1	2	3	4
C. When you get news, you focus on it for periods of 20 minutes or more.*	1	2	3	4
D. You generally get news in short bursts.	1	2	3	4
E. You usually read, watch or listen to only one or two news stories before moving on to something else.	1	2	3	4
F. You usually spend more than 20 minutes getting news before moving on to something else.*	1	2	3	4

These next questions ask more about your use of different platforms for news, including print, television, computer, radio, and mobile devices. You'll be asked about how many days per week you get news on that platform, and then your use of that platform yesterday.

6. About how many days per week, on average, do you read a printed newspaper?
1. 1 day
2. 2 days
3. 3 days
4. 4 days
5. 5 days
6. 6 days
7. 7 days
8. I don't usually get news in print (Skip to Q10)

7. Did you get a chance to read a printed newspaper **yesterday**?
1. Yes
2. No (Skip to Q10)

8. About how much time did you spend reading the newspaper yesterday? Hours: _____ Minutes:____

9. Thinking of the time you spent reading the newspaper yesterday, was it all at once, or spread out over the course of the day?
1. All at once
2. Spread out over the course of the day (Show Q9a)

9a. Thinking of the last time you read the newspaper yesterday, about how long did you spend getting news before moving on to something else? Hours: _____ Minutes:____

10. About how many days per week, on average, do you watch the news on TV?

1. 1 day
2. 2 days
3. 3 days
4. 4 days
5. 5 days
6. 6 days
7. 7 days
8. I don't usually watch the news on TV (Skip to Q14)

11. Did you get a chance to watch the news on TV **yesterday**?
1. Yes
2. No (Skip to Q14)

12. About how much time did you spend watching the news on TV yesterday? Hours: _____ Minutes:____

13. Thinking of the time you spent watching the news on TV yesterday, was it all at once, or spread out over the course of the day?
1. All at once
2. Spread out over the course of the day (Show Q13a)

13 a. Thinking of the last time you got news on TV yesterday, about how long did you spend getting news before moving on to something else? Hours: _____ Minutes:____

14. About how many days per week, on average, do you get news online using a laptop or desktop computer?
1. 1 day
2. 2 days
3. 3 days
4. 4 days
5. 5 days
6. 6 days
7. 7 days
8. I don't usually get news on a computer (Skip to Q18)

15. Did you get a chance to get news online using a laptop or desktop computer **yesterday**?
1. Yes
2. No (Skip to Q18)

16. About how much time did you spend getting news on a laptop or desktop computer yesterday? Hours: _____ Minutes:____

17. Thinking of the time you spent getting news on a laptop or desktop computer yesterday, was it all at once, or spread out over the course of the day?
1. All at once
2. Spread out over the course of the day (Show Q17a)

17a. Thinking of the last time you got news on a laptop or desktop computer yesterday, about how long did you spend getting news before moving on to something else? Hours: _____ Minutes:____

18. About how many days per week, on average, do you listen to news on the radio?
1. 1 day
2. 2 days
3. 3 days
4. 4 days
5. 5 days
6. 6 days
7. 7 days
8. I don't usually listen to news on the radio (Skip to Q22)

19. Did you get a chance to listen to news on the radio **yesterday**?
1. Yes
2. No (Skip to Q22)

20. About how much time did you spend listening to news on the radio yesterday? Hours: _____ Minutes:____

21. Thinking of the time you spent listening to news on the radio yesterday, was it all at once, or spread out over the course of the day?
1. All at once
2. Spread out over the course of the day (Show Q21a)

21 a. Thinking of the last time you got news on the radio yesterday, about how long did you spend getting news before moving on to something else? Hours: _____ Minutes:____

22. About how many days per week, on average, do you get news on a smartphone, such as an iPhone or Android?
1. 1 day
2. 2 days
3. 3 days
4. 4 days
5. 5 days
6. 6 days
7. 7 days
8. I don't usually get news on a smartphone (Skip to Q26)

23. Did you get a chance get news on a smartphone (such as an iPhone or Android) **yesterday**?
1. Yes
2. No (Skip to Q26)

24. About how much time did you spend getting news on a smartphone yesterday? Hours: _____ Minutes:____

25. Thinking of the time you spent getting news on a smartphone yesterday, was it all at once, or spread out over the course of the day?

1. All at once
2. Spread out over the course of the day (Show Q25a)

25a. Thinking of the last time you got news on a smartphone yesterday, about how long did you spend getting news before moving on to something else? Hours: _____ Minutes:____

26. About how many days per week, on average, do you get news on a tablet, such as an iPad or Kindle?

1. 1 day
2. 2 days
3. 3 days
4. 4 days
5. 5 days
6. 6 days
7. 7 days
8. I don't usually get news on a tablet (Skip to Q30)

27. Did you get a chance get news on a tablet (such as an iPad or Kindle) **yesterday**?

1. Yes
2. No (Skip to Q30)

28. About how much time did you spend getting news on a tablet yesterday? Hours: _____ Minutes:____

29. Thinking of the time you spent getting news on a tablet yesterday, was it all at once, or spread out over the course of the day?

1. All at once
2. Spread out over the course of the day (Show Q29a)

29 a. Thinking of the last time you got news on a tablet yesterday, about how long did you spend getting news before moving on to something else? Hours: _____ Minutes:____

30. How do you usually get news on your mobile device?

1. App
2. Browser
3. Twitter
4. Facebook
5. Notification
6. Breaking news alert
7. Search engine
8. Snapchat
9. Other _____

These questions want to know how often you pay attention to various categories of news.

30. Do you often, sometimes, occasionally or never pay attention to the following categories of news:

	Never	Occasionally	Sometimes	Often
H. International News	1	2	3	4
I. National News	1	2	3	4
J. Local News	1	2	3	4
K. Celebrity & Entertainment News	1	2	3	4
L. Sports News	1	2	3	4
M. Weather News	1	2	3	4
N. Health News	1	2	3	4
H. Business News	1	2	3	4
I. Political News	1	2	3	4
J. Crime, Accident and Disaster News	1	2	3	4
K. Technology News	1	2	3	4
L. Breaking News	1	2	3	4
M. Environment News	1	2	3	4

These questions are about mobile devices, including smartphones and tablet computers.

31. Which, if any, devices do you own?

	Yes	No
5. Smartphone such as an iPhone or Samsung Galaxy	1	2
6. Tablet computer such as an iPad	1	2
7. Cellphone (excluding iPhone, Samsung or other Android smartphone)	1	2
8. E-reader	1	2

(If 1 and 2 are "no," skip to Q37)

32. Which of the following social media apps do you have?

	Yes	No
A. Facebook	1	2
B. Twitter	1	2
C. Google+	1	2
D. Instagram	1	2
E. YouTube	1	2
F. Snapchat	1 (Answer Q33.)	2 (Skip to Q34.)
G. Other		

33. What do you primarily do on Snapchat?

_____

34. How often do you see news on the following mobile apps? (If you do not have the app, please click: 5, Don't have app.) Often Sometimes Occasionally Never (Don't have app.)

A. Facebook	1	2	3	4	5
B. Twitter	1	2	3	4	5
C. Google+	1	2	3	4	5
D. Instagram	1	2	3	4	5
E. YouTube	1	2	3	4	5
F. Snapchat	1	2	3	4	5

(If F is 4 or 5, skip to Q37)

35. How much attention have you paid to the news you've seen on Snapchat?
    1. A lot
    2. Some
    3. None

36. What is your opinion of the news you've seen on Snapchat?

_____

The next few questions are about your civic awareness and participation.

37. Did you vote in the 2012 U.S. Presidential Election?
    3. Yes
    4. No

38. In the past year, have you contacted an elected official in any way (via mail, phone, email, social media, etc.)?
    1. Yes
    2. No

39. In the past year, have you attended a public meeting or hearing to discuss community problems?
    1. Yes
    2. No

40. In the past year, have you signed or shared a petition (in person or online)?
    1. Yes
    2. No

41. In the past year, have you donated money to a campaign or political cause?
    1. Yes
    2. No

42. In the past year, have you donated money to or volunteered for a charity or community organization?
    1. Yes
    2. No

[News Knowledge; randomize response order]

43. Which major U.S. city recently voted to raise the minimum wage to $15?
    1. Los Angeles
    2. Chicago
    3. New York
    4. Seattle

44. The largest auto recall in history was recently announced because of defective:
    1. airbags
    2. ignition switches
    3. exhaust valves
    4. seatbelts

45. To comply with the health care law, most Americans must now indicate they have health insurance coverage when they:
    1. File their taxes
    2. Receive a driver's license
    3. Register to vote
    4. Apply for a job

46. The United States recently re-established diplomatic relations with which country?
    1. Cuba
    2. Russia
    3. North Korea
    4. Yemen

47. The U.S. Court of Appeals recently ruled that it is illegal for which federal agency to collect Americans' phone records in bulk?
    1. NSA
    2. FBI
    3. CIA
    4. TSA

[Political Partisanship, to be folded]

48. Do you generally think of yourself as a Republican, a Democrat, or an independent?

Strong Democrat				Independent				Strong Republican		
1	2	3	4	5	6	7	8	9	10	11

[Discussion network size]

49. Think about the people you have talked to regarding politics or public affairs. During the past week, about how many total people have you talked to face-to-face or over the phone about politics or public affairs? [Open ended]_____

50. Still thinking about the people that you have talked to about politics or public affairs during the past week, about how many people would you say you have talked to via the Internet, including texting, e-mail, chat rooms, social networking sites and micro-blogging sites? [Open ended] _____

[Political efficacy, *indicates reverse coding]

51. How much do you agree or disagree with the following statements about public life?

		A lot	Some	A little	Not at all
a.	People like me can influence government	1	2	3	4
b.	I consider myself qualified to participate in politics	1	2	3	4
c.	I have a good understanding of the important political issues facing our country	1	2	3	4
d.	People like me don't have any say in what the government does*	1	2	3	4
e.	No matter whom I vote for, it won't make a difference*	1	2	3	4
f.	I don't think public officials care much about what people like me think*	1	2	3	4

[Demographics]

52. What year were you born?

_____

53. Are you?
    3. Male
    4. Female

54. What is the highest level of education that you've completed?
    8. Some High School or Less
    9. High School Degree
    10. Some College or Technical School Degree
    11. College Graduate
    12. Some Graduate or Professional School
    13. Masters, M.D. or Doctorate
    14. Other _____

55. What is your race or ethnic group?
    7. Caucasian or White
    8. African American or Black
    9. Hispanic or Latino
    10. Asian American
    11. Native American
    12. Other _____

56. Are you of Hispanic or Latino origin, such as Latin American, Mexican, Puerto Rican or Cuban?
    3. Yes
    4. No

57. Approximately, what is your household income?
    11. Under $20,000

12. $20-$29,000
13. $30-$39,000
14. $40-$49,000
15. $50-$59,000
16. $60-$69,000
17. $70-$79,000
18. $80-$89,000
19. $90-$99,000
20. $100,000 or more

58. Some people have both a landline and a smartphone. Others have one or the other. What about you? Do you own:
1. Landline phone only
2. Cellphone or smartphone only
3. Landline and cellphone
4. Other _____

59. What is your zip code?

_____

Those are all of my questions. Thank you for your participation.

Appendix 3: Comparison of study demographics

	Study 1 (OSR)	Study 2 (mTurk)	U.S. Census American Community Survey 2012 (1-Year Estimates)
	(%)	(%)	(%)
Age:			
18-24	10.6	18.6	10.0
25-34	22.0	41.3	13.4
35-44	16.3	19.2	13.0
45-64	36.8	18.8	26.4
65 or more	14.3	2.1	13.7
Gender:			
Male	48.0	49.7	49.2
Female	52.0	50.3	50.8
Race / Ethnicity:			
White	61.3	75.4	73.9
Hispanic	18.6	6.9	16.9
African American	12.8	7.6	12.6
Asian	5.3	8.5	5.0
Education:			
High school or less	23.2	10.4	41.6
Some college	31.4	34.9	29.2
Bachelor's degree	29.5	37.0	18.2
Graduate degree	15.9	17.7	10.9
Household Income:			
Less than $49,999	51.8	54.9	51.9
$50,000 to $99,999	34.7	34.8	32.7
$100,000 or more	13.5	10.3	15.4

Appendix 4: IRB Determiniation

The following letter was issued by the University of Texas at Austin Institutional Review Board in 2014 to Dr. Paula Poindexter, the supervisor of this dissertation. Questions used in Study 1 were included on a national survey Dr. Poindexter funded. In 2015, this same IRB protocol was amended to include Study 2.

OFFICE OF RESEARCH SUPPORT

THE UNIVERSITY OF TEXAS AT AUSTIN

P.O. Box 7426, Austin, Texas 78713 · Mail Code A3200
(512) 471-8871 · FAX (512) 471-8873

FWA # 00002030

Date: 06/20/14

PI: Paula M Poindexter

Dept: Journalism

Title: 2014 National Survey of News Engagement and Public Attitudes about News

Re: IRB Exempt Determination for Protocol Number 2014-06-0048

Dear Paula M Poindexter:

Recognition of Exempt status based on 45 CFR 46.101(b)(2).

Qualifying Period: 06/20/2014 to 06/19/2017. *Expires 12 a.m. [midnight] of this date.*
A continuing review report must be submitted in three years if the research is ongoing.

Responsibilities of the Principal Investigator:

Research that is determined to be Exempt from Institutional Review Board (IRB) review is not exempt from ensuring protection of human subjects. The following criteria to protect human subjects must be met. The Principal Investigator (PI):

1. Assures that all investigators and co-principal investigators are trained in the ethical principles, relevant federal regulations, and institutional policies governing human subject research.

2. Will provide subjects with pertinent information (e.g., risks and benefits, contact information for investigators and IRB Chair) and ensures that human subjects will voluntarily consent to participate in the research when appropriate (e.g., surveys, interviews).

3. Assures the subjects will be selected equitably, so that the risks and benefits of the research are justly distributed.

4. Assures that the IRB will be immediately informed of any information or unanticipated problems that may increase the risk to the subjects and cause the category of review to be reclassified to expedited or full board review.

5. Assures that the IRB will be immediately informed of any complaints from subjects regarding their risks and benefits.

6. Assures that confidentiality and privacy of the subjects and the research data will be maintained appropriately to ensure minimal risks to subjects.

7. Will report, by amendment, any changes in the research study that alter the level of risk to subjects.

These criteria are specified in the PI Assurance Statement that was signed before determination of exempt status was granted. The PI's signature acknowledges that they understand and accept these conditions. Refer to the Office of Research Support (ORS) website www.utexas.edu/irb for specific information on training, voluntary informed consent, privacy, and how to notify the IRB of unanticipated problems.

1. Closure: Upon completion of the research study, a Closure Report must be submitted to the ORS.

2. Unanticipated Problems: Any unanticipated problems or complaints must be reported to the IRB/ORS immediately. Further information concerning unanticipated problems can be found in the IRB Policies and Procedure Manual.

3. Continuing Review: A Continuing Review Report must be submitted if the study will continue beyond the three year qualifying period.

4. Amendments: Modifications that affect the exempt category or the criteria for exempt determination must be submitted as an amendment. Investigators are strongly encouraged to contact the IRB Program Coordinator(s) to describe any changes prior to submitting an amendment. The IRB Program Coordinator(s) can help investigators determine if a formal amendment is necessary or if the modification does not require a formal amendment process.

If you have any questions contact the ORS by phone at (512) 471-8871 or via e-mail at orsc@uts.cc.utexas.edu.

Sincerely,

James P. Wilson

James Wilson, Ph.D.
Institutional Review Board Chair

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